Faculty, Adjunct professors, Research scientists,

Visiting scientists, Lecturers, PhD students, Post-doc

and Staff

at the Pescara Center

December 2022

Contents

ICRANet Faculty Staff

Belinski, Vladimir	ICRANet
Bianco, Carlo Luciano	ICRANet and Università di Roma "Sapienza"
Cherubini, Christian	ICRANet and University Campus Bio-medico, Italy
Damour, Thibault	IHES, France
Della Valle, Massimo	INAF-Napoli - Osservatorio Astronomico di Capodimonte, Italy
Filippi, Simonetta	ICRANet and University Campus Bio-medico, Italy
Giommi, Paolo	ASI Science Data Centre, Italy
Jantzen, Robert	AbrahamTaub-ICRANet Chair and Villanova University, USA
Kerr, Roy P.	Yevgeny Mikhajlovic Lifshitz - ICRANet University of Canterbury, New Zeland
Li, Liang	ICRANet
Moradi, Rahim	ICRANet
Punsly, Brian Mathew	Mathew California University, Los Angeles USA
Rueda, Jorge A.	ICRANet and Università degli Studi di Ferrara
Ruffini, Remo	ICRANet and Università di Roma "Sapienza"
Sahakyan, Narek	ICRANet-Yerevan, Armenia
Vereshchagin, Gregory	ICRANet
Wang, Yu	ICRANet
Xue, She Sheng	ICRANet

Adjunct Professors of the Faculty

Aimuratov, Yerlan	Fesenkov Astrophysical Institute, Kazakhstan
Ansoldi, Stefano	University of Udine, Italy
Argüelles, Carlos	CONICET, Argentina
Barres de Almeida, Ulisses	CBPF, Rio de Janeiro, Brazil
Becerra Bayona, Laura Marcela	Universidad Católica de Chile, Chile
Bini, Donato	CNR, Italy
Buchert, Thomas	Centre de Recherche Astrophysique de Lyon, UCBL1, ENS-L, CNRS, France
Camargo Rodrigues de Lima, Rafael	Universidade do Estado de Santa Catarina, Brazil
Chakrabarti, Sandip Kumar	Indian Centre for Space Physics, Kolkata, India
Cherubini, Christian	ICRANet and Campus Biomedico, Italy
Della Valle, Massimo	Osservatorio di CapodiMonte, Italy
Filippi, Simonetta	ICRANet and Campus Biomedico, Italy
Fisher, Robert	University of Massachusetts Dartmouth
Frontera, Filippo	University of Ferrara, Italy
Fryer, Chris L.	University of Arizona, Tucson, Arizona, USA
Giommi, Paolo	ASI, Italian Space Agency
Karlica, Mile	University of Nova Gorica, Slovenia
Kleinert, Hagen	Richard Feynmann - ICRANet Chair, Freie Universitat Berlin
Kerr, Roy	Yevgeny Mikhajlovic Lifshitz - ICRANet Chair and University of Canterbury, New Zeland
Lee, Hyung Won	Inje University, South Korea
Mansouri, Reza	Sharif University of Technology
Mathews, Grant	University of Notre Dame
Merafina, Marco	University of Rome La Sapienza, Italy
Mirabel, Felix	CEA

Mirtorabi, Seyed Mohammad Taghi	Alzahra University, Iran
Muccino, Marco	INFN
Pak-Hin, Tam	Sun Yat-Sen University, Guangzhou, China
Piran, Tsvi	Yuval Neeman-ICRANet Chair and the Hebrew University, Israel
Prakapenia, Mikalai	ICRANet-Minsk, Belarus
Punsly, Brian Mathew	Mathew California University, Los Angeles USA
Quevedo, Hernando	Institute of Nuclear Science, UNAM
Rodriguez Ruiz, José Fernando	Universidad Industrial de Santander
Shakeri, Soroush	Isfahan University of Technology, Iran
Sigismondi, Costantino	ICRA, Italy
Sobouti, Yousef	Institute for Advanced Studies in Basic Sciences, IASBS, Iran
Zen Vasconcellos, Cesar Augusto	UFRGS, Porto Alegre, RS, Brazil

Lecturers

Aksenov, Alexei	Institute for Theoretical and Experimental Physics
Alekseev, Georgy	Steklov Mathematical Inst- Russian Acad of Sciences
Bini, Donato	CNR and ICRANet, Italy
Chen, Pisin	National Taiwan University, Kavli Instit. Particle Astrophysics and Cosmology
Cherubini, Christian	Campus Biomedico, Rome, Italy
Jing, Yi-Peng	Shangai Astronomy Observatory
Lee, Chul Hoon	Hanyang University, Seoul, Korea
Lee, Hyun Kyu	Department of Physics, Hanyang University, Korea
Lou, You Qing	Tsinghua University, Beijing
Mester, John	Stanford University, USA
Ohanian, Hans	Rensselaer Polytechnic Institute, New York, USA
Pacheco, José	Observatoire de la Côte d'Azur, Nice, France
Perez Bergliaffa, Santiago	Univesidade do Estado de Rio de Janeiro, Brasil
Pucacco Giuseppe	Università di Tor Vergata, Rome, Italy
Sang Pyo Kim	Kunsan National University, Korea
Sepulveda, Alonso	University of Antioquia, Columbia
Song Doo Jong	Korea Astronomy and Space Science Institute, South Korea
Starobinsky, Alexei	Landau Institute for Theoretical Physics, Russia
Sung-Won Kim	Institute of Theoretical Physics for Asia-Pacific, Korea
Wiltshire David	University of Canterbury, New Zealand

Research Scientists

Benetti, Micol	ICRANet
Bernardini, Maria Grazia	ICRANet and Università di Roma "Sapienza", Italy
Lattanzi, Massimiliano	University of Oxford and ICRANet
Patricelli, Barbara	ICRANet and Università di Roma "Sapienza", Italy
Rotondo, Michael	ICRANet and Università di Roma "Sapienza", Italy

Visiting Scientists

Abishev, Medeu	Al-Farabi Kazakh National University, Kazakhstan
Ahmedov, Bobomurat	Uzbekistan Academy of Sciences
Alfonso Pardo, Wilmer Daniel	Universidad de Antioquia Medellín, Antioquia, Colombia
Ansoldi, Stefano	University of Udine, Italy
Arkhangelskaya, Irene	Moscow Engineering Physics Institute, Russia
Bakytzhan, Zhami	Al-Farabi Kazakh National University, Kazakhstan
Batebi, Saghar	Isfahan University of Technology, Iran
Bavarsad, Ehsan	Isfahan University of Technology, Iran
Belczynski, Chris	Nicolaus Copernicus Astronomical Center, Poland
Berezhiani, Zurab	University of L'Aquila
Bernal, Cristian Giovanny	Universidad Nacional Autónoma de México (UNAM), Mexico
Bisnovatyi-Kogan, Gennady	Space Research Institute of the Russian Academy of Sciences - SRI RAS
Blinne, Alexander	University Jenna, Germany
Boçi, Sonila	University of Tirana, Albania
Boshkayev, Kuantay	Al-Farabi Kazah National University, Kazakhstan
Cadez, Andrej	University of Ljubljana, Slovenia
Cho, Yongmin	UNIST
Corvino, Giovanni	University of Rome La Sapienza, Italy
Da Cunha, Bruno Carneiro	UFPE, Brazil
Davis, Stanley	Université Bordeaux, France
De Lorenci, Vitorio	Federal University Of Itajuba - Brazil
Eslampanah, Behzad	University of Mazandaran, Iran
Eslamzadeh Askestani, Sareh	University of Mazandaran, Iran

Ewald, Denise Grüne	Universidade Federal do Rio Grande do Sul, Brazil
Fimin, Nicolaj	Keldish Institute for Applied Mathematics, Russia
Gadri, Mohamed	University of Tripoli, Libya
Gallego Cadavid, Alexander	Universidad de Antioquia Medellín, Antioquia, Colombia
Goulart, Erico	Centro Brasileiro de Pesquisas Físicas, Brazil
Guzzo, Marcelo Moraes	Universidade Estadual de Campinas, Brazil
Haghighat, Mansour	Isfahan University of Technology, Iran
Hoang, Ngoc-Long	IPE, Hanoi, Vietnam
Hütsi, Gert	Tartu Observatory, Estonia
Kenesbek, Zhadyra	Al-Farabi Kazakh National University, Kazakhstan
Kilin, Sergei	National Academy of Sciences of Belarus
Kim, Hongsu	KASI
Kim, Hyeong-Chan	Chungju National University
Kim, Hyuong Yee	INJE, South Korea
Kim, Jin Young	Kunsan National University
Kim, Sang Pyo	Kunsan National University, Republic of Korea
Komarov, Stanislav	BSU and NASB - Belarus
Lecian, Orchidea Maria	Sapienza University of Rome, Italy
Lee, Chang-Hwan	Pusan National University
Lee, Hyung Won	Inje University
Lee, Wonwoo	Cquest, Sogang University
Lin, Wenbin	Southwest Jiaotong University, Chengdu, China
Mahmoudikooshkeqazi, Somayyeh	Shiraz University, Iran
Malheiro, Manuel	ITA, Brazil
Mansouri, Reza	Sharif University of Technology, Iran

Mathews, Grant	University of Notre Dame, USA
Modaresvamegh, Saeidehalsadat	Shiraz University, Iran
Mohammadi, Rohollah	Isfahan University of Tecnology, Iran
Moliné, Maria de los Angeles	Instituto de Astrofísica e Ciências do Espaço, Lisboa
Mosquera Cuesta, Herman	Instituto Federal de Educação, Ciência e Tecnologia do Ceará, Brazil
Motie, Iman	Isfahan University of Technology, Iran
Muhsin Burhan Mohammed Rashid Al-Jaf	University of Science and Technology of China - Hefei
Nagataki, Shigehiro	Yukawa Institute for Theoretical Physics, Kyoto University
Nessipbay, Aizhan	Al-Farabi Kazakh National University, Kazakhstan
Pak-Hin, Tam	Sun Yar-Sen University, China
Pakhshan, Espoukeh	Azad University
Park, Ilhung	Ieu, Ewha Womans University
Park, Myeong-Gu	Kyungpook National University
Passiltay, Ainur	Al-Farabi Kazakh National University, Kazakhstan
Paudel, Rishiram	Tribhuvan University, Central Department of Physics
Peqini, Klaudio	University of Tirana, Albania
Peres Menezes, Débora	Universidade Federal de Santa Catarina, Brazil
Peresano, Michele	University of Udine, Italy
Perez Bergliaffa, Santiago	Universidade do Estado do Rio de Janeiro, Brazil
Perez Martinez, Aurora	Instituto de Cibernetica Matematica Y Fisica, Cuba
Picanco Negreiros, Rodrigo	Universidade Federal Fluminense, Brazil
Piechocki, Wlodzimierz	Institute for Nuclear Studies - Poland
Pinto Neto, Nelson	Centro Brasileiro de Pesquisas Físicas, Brazil
Prakapenia, Mikalai	B.I. Stepanov Institute of Physics, NASB, ICRANet-Minsk
Qadir, Ashgar	National University of Sciences and Technology -

	Pakistan
Rafelski, Johann	University of Arizona
Raffaelli, Bernard	Université de Corse, France
Rastegar Nia, Fatemeh	Alzahra University, Iran
Riahi, Rashid	Isfahan University of Technology, Iran
Romano, Antonio Enea	Universidad de Antioquia Medellín, Antioquia, Colombia
Romero, Gustavo E.	Instituto Argentino de Radioastronomia IAR-CONICET, Argentina
Rybak, Ivan	Centro de Astrofísica da Universidade do Porto, Portugal
Sasaki, Misao	Kyoto University, Japan
Shakeri, Soroush	Isfahan University of Technology, Iran
Soares Maia, Clovis Achy	Universidade de Brasília, DF, Brazil
S. O. Kepler	Universidade Federal do Rio Grande do Sul, Brazil
Tahvildarzadeh, Abdolreza	Rutgers, the State Univeristy of New Jersey, USA
Tarasenko, Aleksander	Belarusian State University
Teixeira Coelho, Hélio	Universidade Federal de Pernambuco, Brazil
Tkachenko, Alessya	Al-Farabi Kazakh National University, Kazakhstan
Torres, Sergio	Centro Internacional de Fisica, Bogotà, Colombia
Torrieri, Donato Giorgio	Universidade Estadual de Campinas, Brazil
Tizchang, Seddigheh	Isfahan University of Technology, Iran
Vallejo Peña, Sergio Andrés	Universidad de Antioquia Medellín, Antioquia, Colombia
Van Putten, Maurice	Korean Institute for Advanced Study, South Korea
Vyblyi, Yuri	B.I. Stepanov Institute of Physics, Republic of Belarus
Yang, Jongmann	Ieu, Ewha Womans University
Yeom, Dong-Han	Cquest, Sogang University

Yernazarov, Tursynbek	Al-Farabi Kazakh National University
Zhang, Shurui	University of Science and Technology of China - Hefei
Zheng, Yunlong	University of Science and Technology of China
Zhumabayeva, Symbat	Al-Farabi Kazakh National University, Kazakhstan

International Relativistic Astrophysics Ph. D

First Cycle	*2002-2005*
Peirani, Sebastien	France
Second Cycle	*2003-2006*
Bernardini, Maria Grazia	Italy
Mattei, Alvise	Italy
Mercuri, Simone	Italy
Third Cycle	2004-2007
Chiappinelli, Anna	France
Cianfrani, Francesco	Italy
Guida, Roberto	Italy
Rotondo, Michael	Italy
Yegorian, Gegham	Armenia
Vereshchagin, Gregory	Belarus
Fourth Cycle	2005-2008
Battisti, Marco Valerio	Italy
Dainotti, Maria Giovanna	Italy
Khachatryan, Harutyun	Armenia
Lecian, Orchidea Maria	Italy
Pizzi, Marco	Italy
Pompi, Francesca	Italy
Fifth Cycle	*2006-2009*
Caito, Letizia	Italy
De Barros, Gustavo	Brazil
Minazzoli, Olivier	Switzerland
Patricelli, Barbara	Italy
Rangel Lemos, Luis Juracy	Brazil
Rueda Hernandez, Jorge Armando	Colombia
Sixth Cycle	*2007-2010*
Ferroni, Valerio	Italy
Izzo, Luca	Italy
Kanaan, Chadia	
Pugliese, Daniela	Italy
Sigismondi, Costantino	Italy
Siutsou, Ivan	Belarus
Seventh Cycle	*2008-2011*
Belvedere, Riccardo	Italy
Ceccobello, Chiara	
Ferrara, Walter	Italy
Han, Wen-Biao	China
Luongo, Orlando	Italy
Pandolfi, Stefania	Italy
Taj, Safia	Pakistan
Eighth Cycle	*2009-2012*
Boshkayev, Kuantay	Kazakhstan

Bravetti, Alessandro	Italy
Haney, Maria	Germany
Lombardi, Caterina Antonietta	Italy
Menegoni, Eloisa	Italy
Sahakyan, Narek	Armenia
Sahini, Sahil	India

Ninth Cycle	*2010-2013*
Arguelles, Carlos	Argentina
Benetti, Micol	Italy
Muccino, Marco	Italy

Tenth Cycle	*2011-2014*
Cáceres Uribe, Diego Leonardo	Colombia
Wang, Yu	China

Eleventh Cycle	*2012-2015*
Barbarino, Cristina	Italy
Cipolletta, Federico	Italy
Dichiara, Simone	Italy

Twelfth Cycle	*2013-2016*
Becerra, Laura	Colombia
Harutyunyan, Vahagn	Armenia

Thirteenth Cycle	*2014-2017*
Moradi, Rahim	Iran
Rodriguez Ruiz, Jose Fernando	Colombia

Fourteenth Cycle	*2015-2018*
Melon Fuksman, J. David	Argentina
Primorac, Daria	Croatia
Uribe S., Juan D.	Colombia

Fifteenth Cycle	*2016-2019*
Baghmanyan, Vardan	Armenia
Bedić, Suzana	Croatia
Campion, Stefano	Italy
Chen, Yen-Chen	Taiwan
Gasparyan, Sargis	Armenia
Marongiu, Marco	Italy
Martone, Renato	Italy
Vieira Lobato, Ronaldo	Brazil
Zargaryan, Davit	Armenia

Sixteenth Cycle	*2017-2020*
Becerra Vergara, Eduar Antonio	Colombia
Carinci, Massimo Luca Emiliano	Italy
Prakapenia, Mikalai	Belarus
Yunis, Rafael Ignacio	Argentina

IRAP Ph. D. Erasmus Mundus Students

First Cycle	*2010-2013*
Baranov, Andrey	Russia
Benedetti. Alberto	Italy
Dutta, Parikishit	India
Fleig, Philipp	Germany
Gruber, Christine	Austria
Liccardo, Vincenzo	Italy
Machado De Oliveira Fraga, Bernardo	Brazil
Martins De Carvalho, Sheyes	Brazil
Penacchioni, Ana Virginia	Argentina
Valsan, Vineeth	India
Second Cycle	*2011-2014*
Begue, Damien	France
Dereli, Husne	Turkey
Gregoris, Daniele	Italy
Iyyani, Shabnam Syamsunder	India
Pereira, Jonas Pedro	Brazil
Pisani, Giovanni	Italy
Rakshit, Suvendu	India
Sversut Arsioli, Bruno	Brazil
Wu, Yuanbin	China
Third Cycle	*2012-2015*
Bardho, Onelda	Albania
Enderli, Maxime	France
Filina, Anastasia	Russia
Galstyan, Irina	Armenia
Gomes De Oliveira, Fernanda	Brazil
Khorrami, Zeinab	Iran
Ludwig, Hendrik	Germany
Sawant, Disha	India
Strobel, Eckhard	Germany
Fourth Cycle	*2013-2016*
Ahlén, Olof	Sweden
Gómez Diaz, Gabriel	Colombia
Kovacevic, Milos	Serbia
Li, Liang	China
Lisakov, Sergey	Russia
Maiolino, Tais	Brazil
Sridhar, Srivatsan	India
Stahl, Clément	France
Yang, Xiaofeng	China
Fifth Cycle	*2014-2017*
Aimuratov, Yerlan	Kazakhstan
Chang, Yu-Ling	Taiwan

Delgado, Camilo	Colombia
Efremov, Pavel	Russia
Karilca, Mile	Croatia
Krut, Andreas	Germany
Martinez Aviles, Gerardo	Mexico

CAPES Students

First Cycle	*2013-2016*
Brandt Carlos Henrique	Brazil
Guimarães Carvalho Gabriel	Brazil
Pereira Lobo Iarley	Brazil

Administrative and Secretarial Staff

ICRANet - Pescara

Adamo, Cristina	Administrative Office
Brandolini, Gabriele	System Manager
Di Domizio, Yasmina	Secretariat
Di Niccolo, Cinzia	Secretariat
Latorre, Silvia	Administrative Office
Natale, Elisabetta	Secretariat

ICRANet Faculty Staff

Bianco Carlo Luciano

Position: ICRANetFaculty staff
Member of ICRANet Scientific Committee
Member of IRAP-PhD Faculty

Period covered: 2005 – 2022

I Scientific Work

Research on: Gamma-Ray Bursts, Relativistic astrophysics, Cosmology.

II Conferences and educational activities
II a Conferences and Other External Scientific Work

Gave the following invited lectures:

- C.L. Bianco, M.G. Bernardini, P. Chardonnet, F. Fraschetti, R. Ruffini, S.-S. Xue; Our model for Gamma-Ray Bursts; *1st Bego scientific rencontre*, Université de Nice Sophia-Antipolis, Nice, France, 14 February 2006.
- C.L. Bianco; Equations of motion and beaming in Gamma – Ray Bursts; *1st Cesare Lattes Meeting*, Mangaratiba (RJ), Brazil, 1 March 2007.
- C.L. Bianco, M.G. Bernardini, L. Caito, M.G. Dainotti, R. Guida, R. Ruffini; Theoretical interpretation of GRB060614; *2007 April Meeting of the American Physical Society*; Jacksonville, Florida (USA), 14 April 2007.
- C.L. Bianco; The fireshell model and the canonical GRB scenario; *Scuola Nazionale di Astrofisica (National School of Astrophysics)* (II course, IX cycle); Venice (Italy), 18 September 2007.
- C.L. Bianco, M.G. Bernardini, L. Caito, M.G. Dainotti, R. Guida, R. Ruffini, G. Vereshchagin, S.-S. Xue; Equations of motion of the fireshell; *3rd Stueckelberg Workshop*; Pescara (Italy), 10 July 2008.
- C.L. Bianco, M.G. Bernardini, L. Caito, G. De Barros, L. Izzo, F.A. Massucci, B. Patricelli, R. Ruffini, G. Vereshchagin, S.-S. Xue; The fireshell equations of motion and equitemporal surfaces; *6th Italian-Sino Workshop;* Pescara (Italy), 29 June 2009.
- C.L. Bianco, M.G. Bernardini, L. Caito, G. De Barros, L. Izzo, B. Patricelli, R. Ruffini; The canonical GRB scenario within the fireshell model: “long”, “genuine short” and “disguised

short" GRBs; *GRB 2010: Dall'eV al TeV tutti icoloridei GRB – Secondo congressoitaliano sui GRB*; Cefalù (Italy), 15 June 2010.

- A.G. Aksenov, M.G. Bernardini, C.L. Bianco, L. Caito, C. Cherubini, G. De Barros, A. Geralico, L. Izzo, F.A. Massucci, B. Patricelli, M. Rotondo, J.A. Rueda Hernandez, R. Ruffini, G. Vereshchagin, S.-S. Xue; New developments of the Fireshell scenario; *The Shocking Universe Meeting*, San Servolo, Venice (Italy), September 2009.

- C.L. Bianco, M.G. Bernardini, L. Caito, G. De Barros, L. Izzo, B. Patricelli, R. Ruffini; The fireshell equations of motion and the P-GRB observational properties; *2nd Galileo – Xu GuangQi meeting*, Ventimiglia (Italy), July 2010.

- C.L. Bianco, M.G. Bernardini, L. Caito, G. De Barros, L. Izzo, B. Patricelli, R. Ruffini; The fireshell model for GRBs: toward a canonical GRB scenario; *3rd Galileo – Xu GuangQi meeting*, Beijing (China), October 2011.

II b Work With Students

- Students of the IRAP-PhD programat University "La Sapienza", Rome, Italy: YerlanAimuratov, Maria Grazia Bernardini, Letizia Caito, Maria Giovanna Dainotti, Gustavo De Barros, Maxime Enderli, Roberto Guida, Luca Izzo, MileKarlika, Milos Kovacevic, J. David Melon Fuksman, Marco Muccino, Barbara Patricelli, Ana Virginia Penacchioni, Giovanni Battista Pisani, Daria Primorac, Luis Juracy Rangel Lemos, YuWang.

- Students of the First threeyears degree Thesis ("Tesi di Laurea triennale") in Physicsat University "La Sapienza", Rome, Italy: Giulia De Rosi, Eliana La Francesca, Francesco Alessando Massucci, Federica Volpi.

- Students of the Final Degree Thesis ("Tesi di Laurea Vecchio Ordinamento") in Physicsat University "La Sapienza", Rome, Italy: Letizia Caito, Walter Ferrara, Laura Rosano.

II c Diploma thesis supervision

- 2005. External supervisor of the First three years degree thesis ("Tesi di laureatriennale") in Physics by Francesco Alessandro Massucci at University "La Sapienza", Rome, Italy.

- 2006. External supervisor of the Degree thesis in Physics by Letizia Caito at University "La Sapienza", Rome, Italy.

- 2007. Thesis advisor of the IRAP-PhD Degree Thesis by Maria Grazia Bernardini at University "La Sapienza", Rome, Italy.

- 2008. External supervisor of the First three years degree thesis ("Tesi di laureatriennale") in Physics by Eliana La Francesca at University "La Sapienza", Rome, Italy.

- 2008. Thesis advisor of the IRAP-PhD Degree Thesis by Roberto Guida at University “La Sapienza”, Rome, Italy.
- 2009. External supervisor of the Degree thesis in Physics by Laura Rosano at University “La Sapienza”, Rome, Italy.
- 2010. Thesis advisor of the IRAP-PhD Degree Thesis by Letizia Caito at University “La Sapienza”, Rome, Italy.
- 2010. External supervisor of the First three years degree thesis (“Tesi di laureatriennale”) in Physics by Giulia De Rosi at University “La Sapienza”, Rome, Italy.

II d Other Teaching Duties

- Assistant teacher in the course of “Laboratory of Electromagnetism and Circuits” by Prof. Giulio D’Agostini at Physics Department of the University “La Sapienza”, Rome, Italy, academical year 2005/2006.
- Assistant teacher in the course of “Laboratory of Systems and Signals” by Prof. Mario Mattioli at Physics Department of the University “La Sapienza”, Rome, Italy, academical years 2007/2008, 2008/2009, 2009/2010, 2010/2011, 2011/2012, 2012/2013.
- Assistant teacher in the course of “Laboratory of Systems and Signals” by Prof. Andrea Nigro at Physics Department of the University “La Sapienza”, Rome, Italy, academical years 2013/2014, 2014/2015, 2015/2016, 2016/2017.
- Assistant teacher in the course of “Laboratory of Systems and Signals” by Prof. Mauro Raggi at Physics Department of the University “La Sapienza”, Rome, Italy, academical years 2013/2014, 2014/2015, 2015/2016, 2016/2017, 2017/2018, 2018/2019.

III. Service activities

III a. Within ICRANet

- Administrator of theserver used for numerical computations.
- Secretariat of the IRAP PhD.
- Member of the ICRANet Scientific Committee.
- Member of the IRAP PhD Faculty

III b. Outside ICRANet

- "Cultoredella Materia" ("Expert of the subject") for the "FIS/01 – Experimental Physics", "FIS/02 – Theoretical Physics, Models and Mathematical Methods", "FIS/05 – Astronomy and Astrophysics" scientific sectors in the Mathematical, Physical and Natural Sciences Faculty of the University of Rome "La Sapienza".

IV. Other

2022 List of Publication

Ruffini, R.; Aimuratov, Y.; Becerra, L., et al.; "GRB 220101A: The most powerful GRB and BDHN I in 26 years"; GCN Circular 31465

Ruffini, R.; Aimuratov, Y.; Becerra, L., et al.; "GRB 220101A: The first example of a Petanova"; GCN Circular 31648

Ruffini, R.; Aimuratov, Y.; Becerra, L., et al.; "GRB 220527A: A BdHN I with a clear UPE phase"; GCN Circular 32169

Aimuratov, Y.; Becerra, L.; Bianco, C. L., et al.; "GRB 221009A: A type I BdHN of exceptional energetics"; GCN Circular 32780

Aimuratov, Y.; Becerra, L.; Bianco, C. L., et al.; "GRB 221009A X-ray light-curve and the indication of TeV light-curve"; GCN Circular 32802

Aimuratov, Y.; Becerra, L.; Bianco, C. L., et al.; "GRB 221009A: Peak luminosity of the supernova vs. synchrotron afterglow"; GCN Circular 32808

Aimuratov, Y.; Becerra, L.; Bianco, C. L., et al.; "GRB 221009A: Determination of the black holes mass and spin"; GCN Circular 32828

Cherubini Christian

Position: Full Professor in Mathematical Physics (MAT/07).
Department of Science and Technology for Humans and the Environment
Laboratory of Nonlinear Physics and Mathematical Modeling
Campus Bio-Medico University of Rome
Via A. del Portillo 21, I-00128 Rome, Italy
and
Adjunct Professor in ICRANet Faculty.

Period covered: position at ICRANet started on September 11th, 2017

I Scientific Work

- Electrodynamics and magnetohydrodynamics around black holes;
- Selfgravitating systems;
- Mathematical Biology.

II Conferences and educational activities
II a Conferences and Other External Scientific Work

Prof. Remo Ruffini Festschrift. A conference in celebration of Prof. Remo Ruffini 80° birthday (May 16 - 18, 2022) - Nice and online (talk)

II b Work With Students

II c Diploma thesis supervision

II d Other Teaching Duties

II e. Work With Postdocs

III. Service activities *[activities carried out in collaboration with ICRANet (e.g. teaching activities, conferences etc...) and outside ICRANet (teaching activities in your university etc…]*

III a. Within ICRANet

III b. Outside ICRANet

- Supplementary teaching for the Course of "Rational Mechanics Laboratory" (Engineering Department Faculty, Campus Bio-Medico University of Rome), a.y. 2021-2022.
- Supplementary teaching for the Course of "Electromagnetism" (Engineering Department Faculty, Campus Bio-Medico University of Rome), a.y. 2021-2022.
- Lecturer of "Mathematics" in the integrated Course of Mathematics and Computer Science (Department of Science and Technology for Humans and the Environment, Campus Bio-Medico University of Rome), a.y. 2021-2022.

IV. Other

Prof. Cherubini has a longstanding collaboration with other ICRANET scientists. In particular, in collaboration with Dr D. Bini, Prof. R. T Jantzen, Prof. R. Ruffini and Dr. J.A. Rueda, he has written several articles in various aspects of classical General Relativity. With Prof. S. Filippi he is involved in research activities in the fields of Stellar and Galactic self-gravitating Structures, Analogue models of Gravitation and Complex Systems in biophysics.

2022 List of Publications

Grasso S., Di Marcello F., Sabatini A., Zompanti A.,Di Loreto M.V., Cenerini C., Lodato F., De Gara L., Cherubini C., Pennazza G., Santonico M., "Micromachined Tools Using Acoustic Wave Triggering for the Interaction with the Growth of Plant Biological Systems", Micromachines, Open Access, 13(9), (2022) Article number 1525.

Filippi Simonetta

Position: Full Professor in Theoretical Physics (FIS/02)
Department of Engineering,
Pro-rector for Integrated Academic Development
Head, Laboratory of Nonlinear Physics and Mathematical Modeling
Campus Bio-Medico University of Rome,
Via A. del Portillo 21, I-001285 Rome, Italy,
Tel. +39-06-225419611
and
Adjunct Professor in ICRANet Faculty.

Period covered: position at ICRANet started on September 12th 2017

I Scientific Work

- Electrodynamics around black holes and self-gravitating systems.
- Theoretical biophysics.

II Conferences and educational activities

II a Conferences and Other External Scientific Work

Prof. Remo Ruffini Festschrift. A conference in celebration of Prof. Remo Ruffini 80° birthday (May 16 - 18, 2022) - Nice and online

II b Work With Students

II c Diploma thesis supervision

II d Other Teaching Duties

II e. Work With Postdocs

III. Service activities *[activities carried out in collaboration with ICRANet (e.g. teaching activities, conferences etc...) and outside ICRANet (teaching activities in your university etc…]*

III a. Within ICRANet

III b. Outside ICRANet

- Lecturer "Dynamics of Complex Systems" (Engineering Department, University Campus Bio-Medico of Rome).

- Lecturer “Rational Mechanics Laboratory” (Engineering Departmental Faculty, University Campus Bio-Medico of Rome).
- Faculty of the “Science and Engineering for Humans and the Environment PH.D “ by University Campus Bio-Medico of Rome.

- **IV. Other**

Prof. Filippi has a longstanding collaboration with ICRANET scientists. In particular, in collaboration with Prof. Remo Ruffini she has written several articles on various aspects of Gravitational Physics with a specific focus in classical figures of equilibrium. With Prof. Christian Cherubini, Dr Jorge Rueda, Dr Andrea Geralico and Dr Donato Bini she has been involved in research activities in the fields of Stellar and Galactic Structures, Analogue gravity models and Complex Systems in biological systems.

2022 List of Publications

- Molinari L., Zaltieri M., Massaroni C., Filippi S., Gizzi A. “Multiscale and Multiphysics Modeling of Anisotropic Cardiac RFCA: Experimental-Based Model Calibration via Multi-Point Temperature Measurements”, Frontiers in Physiology, Open Access, 13 (2022) Article number 845896.
- Barone A., Grieco D., Gizzi A., Molinari L., Zaltieri M., Massaroni C., Loppini A., Schena E., Bressi E., de Ruvo E., Caló L., Filippi S., "A Simulation Study of the Effects of His Bundle Pacing in Left Bundle Branch Block: Simulation of His Bundle Pacing in Left Bundle Branch Block", Medical Engineering and Physics, 107, (2022) Article number 103847.

Punsly

Position: Research Scientist
Period covered: 12/2021 – 12/2022

I Scientific Work

Black Holes and Quasars

1. Introduction

This report describes the research performed by Brian Punsly and collaborators in cooperation with ICRANet in 2022. The research was directed at finding environmental factors that are related to the switch-on of the general relativistic engine responsible for the few percent of accreting black holes that drive powerful relativistic jets.

2. **The Energetics of the Central Engine in the Powerful Quasar, 3C298**

Abstract:

The compact steep spectrum radio source, 3C 298, (redshift of 1.44) has the largest 178 MHz luminosity in the 3CR (revised Third Cambridge Catalogue) catalog; its radio lobes are among the most luminous in the Universe. The plasma state of the radio lobes is modeled with the aid of interferometric radio observations (in particular, the new Low Frequency Array observation and archival MERLIN data) and archival single-station data. It is estimated that the long-term time-averaged jet power required to fill these lobes with leptonic plasma is $\overline{Q} \approx 1.28 \pm 0.51 \times 10^{47} \rm{erg}\,\rm{s}^{-1}$, rivaling the largest time averaged jet powers from any quasar. Supporting this notion of extraordinary jet power is a 0.5 keV -10 keV luminosity of $\approx 5.2 \times 10^{46} \rm{erg}\, \rm{s}^{-1}$, comparable to luminous blazars, yet there is no other indication of strong relativistic beaming. We combine two new high signal to noise optical spectroscopic observations from the Hobby-Eberly Telescope with archival Hubble Space Telescope, Two Micron Survey and Galaxy Evolutionary Explorer data to compute a bolometric luminosity from the accretion flow of $L_{\rm{bol}} \approx 1.55 \pm 0.15 \times 10^{47} \rm{erg} \,\rm{s}^{-1}$. The ratio, $\overline{Q}/L_{\rm{bol}}\approx 1$, is the approximate upper limit for quasars. Characteristic of a large $\overline{Q}/L_{\rm{bol}}$, we find an extreme ultraviolet (EUV) spectrum that is very steep (the ``EUV deficit'' of powerful radio quasars relative to radio quiet quasars) and this weak ionizing continuum is likely a contributing factor to the relatively small equivalent widths of the broad emission lines in this quasar.

3. **The Details of Limb Brightening Reveal the Structure of the Base of the Jet in M87 for the FirstTime**

ABSTRACT:

It has become commonplace is astronomy to describe the transverse coarse structure of jets in loosely defined terms such as ``sheath" and ``spine" based on discussions of parsec scale properties. But, the applicability, dimension and prominence of these features on sub-lt-yr scales has previously been unconstrained by observation. The first direct evidence of jet structure near the source in M\,87 is extreme limb brightening (a double-rail morphology), 0.3 - 0.6 mas from the source, that is prominent in observations with high resolution and sensitivity. Intensity cross-cuts of these images provide three strong, interdependent constraints on the geometry responsible for the double-rail morphology: the rail to rail separation, the peak to trough intensity ratio and the rail widths. Analyzing these constraints indicates that half or more of the jet volume resides in a thick-walled, tubular, mildly relativistic, protonic jet only ~ 0.25 lt-yr (or ~ 300 M, where M is the central black hole mass in geometrized units) from the source. By contrast, the Event Horizon Telescope Collaboration interprets their observations with the aid of general relativistic magnetohydrodynamic simulations that produce an invisible (by construction) jet with a surrounding luminous, thin sheath. Yet, it is shown that synthetic images of simulated jets are center brightened 0.3 - 0.6 mas from the source. This serious disconnection with observation occurs in a region previously claimed in the literature to be well represented by the simulations. The limb brightening analysis motivates a discussion of possible simulation modifications to improve conformance with observations.

II Conferences and educational activities

N/A

III. Service activities*N/A*

IV. Other

2022 List of Publication

Punsly, Brian; Groeneveld, Christian; Hill, Gary J.; Marziani, Paola; Zeimann, Gregory R.; Schneider, Donald P., “The Energetics of the Central Engine in the Powerful Quasar, 3C298”, 2022 AJ 163 14

Punsly, Brian “The Details of Limb Brightening Reveal the Structure of the Base of the Jet in M87 for the First Time”,2022 ApJ 936 79

Summary

J.A.R. is a researcher in the field of relativistic astrophysics with more than 150 publications in high-impact-factor journals (H-index 27, Scopus, March 2022), has supervised about 20 doctoral theses in a variety of topics related to theoretical physics and astrophysics of compact stars (white dwarfs and neutron stars; isolated and in binaries), dark matter in galaxies, gamma-ray bursts, accretion onto compact objects, compact-star binaries including electromagnetic and gravitational wave transients from merging binaries. J.A.R. has contributed to the introduction of modern concepts in relativistic astrophysics such as the *dyadotorus* (the region around a charged rotating black hole where vacuum polarization takes place), the global charge neutrality of neutron stars, the white dwarf model of magnetars, the induced gravitational collapse of a neutron star by accretion, the binary-driven hypernova model of gamma-ray bursts, the *darkinos* (fermion particles that can be the dark matter in the Universe), and the *blackholic quantum* (the extractable energy of a rotating black hole immersed in a magnetic field).

Contact Information

First Name	Jorge Armando
Last Name	Rueda Hernandez
Address	International Center for Relativistic Astrophysics Network (ICRANet), Piazza della Repubblica 10, Pescara 65122, Italy
	ICRANet-Ferrara, Dipartimento di Fisica, Università di Ferrara, Via Giuseppe Saragat 1, Ferrara 44122, Italy
	Dipartimento di Fisica, Università di Ferrara, Via Giuseppe Saragat 1, Ferrara 44122, Italy
	International Center for Relativistic Astrophysics (ICRA), Dipartimento di Fisica, Sapienza University of Rome, P.le Aldo Moro 5, Rome 00185, Italy
E-mail	jorge.rueda@icra.it
ORCID	0000-0003-4904-0014

Personal Information

Date of Birth	October 24, 1982
Place of Birth	Barrancabermeja, Colombia
Citizenship	Colombian

Education

2009–2010 *Postdoctoral Researcher*, Sapienza University of Rome, Rome, Italy

Conducted research: *Unified treatment for the description of nuclei and neutron stars based on the Thomas-Fermi model*

2006–2009	*Ph.D in Relativistic Astrophysics*, Sapienza University of Rome, Italy Thesis title: *Electrodynamics: from nuclei to neutron stars* Thesis Advisor: Prof. Remo Ruffini
2005–2006	*Master in Physics*, Universidad de Los Andes, Mérida, Venezuela – Universidad Industrial de Santander, Bucaramanga, Colombia Thesis title: *Radiant shock waves in the post-quasistatic approximation* Thesis Advisor: Prof. Luis Nuñez
2000–2005	*Physicist*, Universidad Industrial de Santander, Bucaramanga, Colombia Thesis title: *Equilibrium of binary systems involving one extreme object in the stationary vacuum case* Thesis Advisor: Prof. Jose David Sanabria Gómez

Additional Qualifications

Computer Skills

Operative Systems	Linux, Windows
Programming Languages	Fortran, C, C++, Python
Scientific Software	Wolfram Mathematica, Maple, Gnuplot, LaTeX

Languages

Spanish	Native
Italian	Spoken (excellent), listen comprehension (excellent), written (excellent)
English	Spoken (very good), listen comprehension (very good), written (excellent)
Portuguese	Spoken (very good), listen comprehension (excellent), written (very good)

Employment History

Administrative

2013–2017	Coordinator CAPES-ICRANet Program, International Center for Relativistic Astrophysics Network (ICRANet), Pescara, Italy
2011–current	Coordinator of international, bilateral cooperation agreements at ICRANet, Pescara, Italy

Scientific Research and Teaching

2012–current	Faculty Professor, International Relativistic Astrophysics (IRAP) PhD Program
2011–current	Full Professor, ICRANet, Pescara, Italy
2019–current	Professor, ICRANet-Unife joint appointment, Physics Department, University of Ferrara, Italy
2011–current	Associate Researcher, International Center for Relativistic Astrophysics (ICRA), Rome, Italy

2012–2017 Professor, ICRANet-Sapienza joint appointment, Physics Department, Sapienza University of Rome, Italy

2006–2011 Scientific Assistant of ICRANet, Pescara, Italy

2006–2011 Substitute Professor. Sapienza University of Rome, Italy

2006 Lecturer, Differential Calculus. Universidad de Los Andes, Mérida, Venezuela

2005 Lecturer, Physics I. Universidad Industrial de Santander, Bucaramanga, Colombia

2005 Lecturer, Waves and Oscillations. Universidad Industrial de Santander, Bucaramanga, Colombia

2004 Assistant lecturer, Newtonian Mechanics. Universidad Industrial de Santander, Bucaramanga, Colombia

Supervisor of Post-doctoral Research

2013–2015 Riccardo Belvedere, CAPES-ICRANet Program Fellow at ICRANet - Rio de Janeiro, Brazil

2013–2015 Rafael Camargo Rodrigues de Lima, CAPES-ICRANet Program Fellow at ICRANet - Pescara, Italy

2013–2015 Jaziel Goulart Coelho, CAPES-ICRANet Program Fellow at Sapienza University of Rome, Italy

Advisor of Ph. D. Thesis

2018–2021 Student: Gulmira Nurbakyt, Al-Farabi Kazakh National University, Almaty, Kazakhstan

Thesis in progress: Gravitational field of compact objects in general theory of relativity

2018–2021 Student: Gulnur Zhumakhanova, Al-Farabi Kazakh National University, Almaty, Kazakhstan

Thesis in progress: Dark matter profiles in galactic bulges and halos

2017–2020 Student: Eduar Becerra, Sapienza University of Rome, Italy

Universidad Industrial de Santander, Bucaramanga, Colombia

Thesis in progress: Geodesic motion in the spacetime of self-gravitating dark matter and its application to stellar orbits around Sgr A*

2017–2020 Student: Rafael Yunis, Sapienza University of Rome, Italy

Fermionic dark matter and its self-interactions: from astrophysics to cosmology

2016–2020 Student: Stefano Campion, Sapienza University of Rome, Italy

Neutrino emission via proton-proton interaction and magnetic field screening in GRBs

2016–2020 Student: Massimo Carinci, Sapienza University of Rome, Italy

Thesis in progress: Fermionic versus bosonic dark matter

2016–2019 Student: Geanderson Araujo Carvalho, Instituto Tecnológico de Aeronáutica, Sao Jose dos Campos, Brazil

Thesis: White dwarfs in general relativity, modified theories of gravity and binary systems

2016–2019 Student: Ronaldo Vieira Lobato, Sapienza University of Rome, Italy

Instituto Tecnológico de Aeronáutica, Sao Jose dos Campos, Brazil

Thesis: SGRs/AXPs and binary star mergers: electromagnetic and gravitational emission

2015–2018 Student: Juan David Uribe, Sapienza University of Rome, Italy

Thesis: Neutrino flavour oscillations in the process of hypercritical accretion: the case of binary-driven hypernovae

2015–2018 Student: José Rodriguez, Sapienza University of Rome, Italy

Thesis: Analytic approaches to the gravitational radiation from astrophysical sources

2013–2016 Student: Laura Becerra, Sapienza University of Rome, Italy

Thesis title: Accretion in compact stars: hypercritical accretion in the induced gravitational collapse and the post-merger evolution of white dwarfs mergers

PhD thesis winner of the International Astronomical Union (IAU) PhD Prize 2018, Division D, High Energy Phenomena and Fundamental Physics

2013–2016 Student: Gabriel Gómez, Sapienza University of Rome, Italy

University of Nice Sophia-Antipolis, Nice, France

Thesis title: Astrophysical implications of the fermionic dark matter in galaxies

2012–2015 Student: Federico Cipolletta, Sapienza University of Rome, Italy

Thesis title: Structure of rotating self-gravitating figures of equilibrium in Newtonian gravity and general relativity with an emphasis on neutron stars

2012–2015 Student: Fernanda Gomes Oliveira, Sapienza University of Rome, Italy

University of Nice Sophia-Antipolis, Nice, France

Thesis title: X, gamma-ray and gravitational wave emission from short and long GRBs and their detection rates

2011–2015 Student: Diego Leonardo Cáceres Uribe, Sapienza University of Rome, Italy

Thesis title: Massive fast rotating highly magnetized white dwarfs: theory and astrophysical applications

2011–2014 Student: Jonas Pedro Pereira, Sapienza University of Rome, Italy

University of Nice Sophia-Antipolis, Nice, France

Thesis title: General relativistic electrodynamical processes in neutron stars and black holes

2011–2014 Student: Carlos Argüelles, Sapienza University of Rome, Italy

Thesis title: Fermionic dark matter on galaxy scales

2010–2013 Student: Sheyse Martins de Carvalho, Sapienza University of Rome, Italy

University of Nice Sophia-Antipolis, Nice, France

Thesis title: Finite temperature effects in the white dwarf structure and neutron star cooling in general relativity

2008–2013 Student: Riccardo Belvedere, Sapienza University of Rome, Italy

Thesis title: Static and rotating neutron stars in a general relativistic formulation of fundamental interactions and their astrophysical applications

2009–2012 Student: Kuantay Boshkayev, Sapienza University of Rome, Italy

Thesis title: Rotating white dwarfs and neutron stars in general relativity

Advisor of Undergraduate/Master Thesis

2019–current Student: Farhad Zekavat, University of Ferrara, Italy

2015–2016 Student: Silvia Petroni, Sapienza University of Rome, Italy

2015–2016 Student: Davide Gizzi, Sapienza University of Rome, Italy

Lecturer in Workshops and Ph. D. Schools (partial list)

2021 *Primera Escuela Latinoamericana de Relatividad y Astrofísica*, 1–3 December, Virtual Meeting, Colombia

2019 *The Open Universe International Doctoral School:"The discovery of Black Holes"*, 10–14 June, Nice, France

2018 *41th International School for Young Astronomers (ISYA)*, 23–27 July, El Socorro, Colombia

2017 *Fifth Bego Rencontres - IRAP Ph.D. Erasmus Mundus School*, 15–19 May, Nice, France

2016 *Fourth Bego Rencontres - IRAP Ph.D. Erasmus Mundus School*, 30 May-3 June, Nice, France

2014 *Third Bego Rencontres - IRAP Ph.D. Erasmus Mundus School*, 9–19 September, Nice, France

2014 *IRAP Ph.D. Erasmus Mundus School*, 11–16 May, Les Houches, France

2013 *Second Bego Rencontres - IRAP Ph.D. Erasmus Mundus School*, 16–31 May, Nice, France

2012 *IRAP Ph.D. Erasmus Mundus School*, 3–21 September, Nice, France

2011 *IRAP Ph.D. Erasmus Mundus School*, 5–16 September, Nice, France

2011 *IRAP Ph.D. Erasmus Mundus School*, May 25-June 10, Nice, France

2011 *IRAP Ph.D. Erasmus Mundus Workshop:From Nuclei to White Dwarfs and Neutron Stars*, 3–8 April, Les Houches, France

2010 *IRAP Ph.D. Erasmus Mundus School*, 1–30 September, Nice, France

Organization of Conferences

2021 *16th Marcel Grossmann Meeting on Relativistic Astrophysics*, 3-9 July, Virtual Meeting

2021 *17th Italian-Korean Symposium on Relativistic Astrophysics*, 2-6 August, Virtual Meeting

2018 *15th Marcel Grossmann Meeting on Relativistic Astrophysics*, 1-7 July, Rome, Italy

2018 *2nd Julio Garavito Armero Meeting on Relativistic Astrophysics*, 1–2 August, Bucaramanga, Colombia

2018 *The Third Zeldovich meeting*, 23–27 April, Minsk, Belarus

2017 *15th Italian-Korean Symposium on Relativistic Astrophysics*, 3–7 July, Seoul, South Korea

2017 *The Fifth Galileo-Xu Guangqi Meeting*, 25–30 June, Chengdu, China

2016 *Supernovae, Hypernovae and Binary Driven Hypernovae - An Adriatic Workshop*, 20-30 June, Pescara, Italy

2015 *14th Italian-Korean Symposium on Relativistic Astrophysics*, 20–24 July, Pescara, Italy

2015 *First Sandoval Vallarta Caribbean Meeting*, 30 November-3 December, Mexico City, Mexico

2015 *First Julio Garavito Armero Meeting on Relativistic Astrophysics*, 23–27 November, Bucaramanga, Colombia

Speaker in Plenary Session

2021 *Gravitomagnetic interaction of a Kerr black hole with a magnetic field as the source of the high-energy radiation of gamma-ray bursts*, ICRANet-ISFAHAN Astronomy Meeting, 3–5 November, Isfahan University of Technology, Iran

2021 *RAGtime 23 workshop*, 6–10 September, Institute of Physics, Faculty of Philosophy and Science of the Silesian University in Opava, Czech Republic

2021 *Synchrotron emission in GRB afterglows from binary-driven hypernovae and compact star binary mergers*, 17th Italian-Korean Symposium on Relativistic Astrophysics, 2–6 August, Virtual Meeting, Kunsan National University, South Korea

2021 *GRB 170817A as a double white dwarf merger*, 16th Marcel Grossmann Meeting, Virtual Meeting, Italy

2020 *An update of the binary-driven hypernova scenario*, The Fourth Zeldovich meeting, 7–11 September, Virtual Meeting, Belarus

2019 *RAGtime 21 workshop*, 16–20 September, Institute of Physics, Faculty of Philosophy and Science of the Silesian University in Opava, Czech Republic

2018 *Nuevos límites a la naturaleza de la materia oscura a partir de observables de la Vía Láctea*, 2nd Julio Garavito Armero Meeting on Relativistic Astrophysics, Bucaramanga, Colombia

2018 *Binary-driven hypernovae and the understanding of gamma-ray bursts*, 15th Marcel Grossmann Meeting, Rome, Italy

2018 *Latest news on the induces gravitational collapse scenario of long gamma-ray bursts*, The Third Zeldovich meeting, Minsk, Belarus

2018 *Simulating the induced gravitational collapse scenario of gamma-ray bursts*, Conference on Particles and Cosmology, 5–9 March, Singapore

2017 *¿Hacia dónde van la astronomía y la astrofísica en Colombia?*, 20 October, Universidad Industrial de Santander, Bucaramanga, Colombia

2017 *Binary-driven hypernovae as multimesseger astrophysical systems*, THESEUS Workshop, 5–6 October, Naples, Italy

2017 *News on neutrino astrophysics from gamma-ray bursts*, 9th European Summer School on Experimental Nuclear Astrophysics, 17–24 September, Santa Tecla, Italy

2017 *On the detection rate of the gravitational-wave emission of short and long gamma-ray bursts*,The Fifth Galileo-Xu Guangqi Meeting, 25–30 June, Chengdu, China

2017 *On the rate and gravitational wave emission of short and long GRBs*, 15th Italian-Korean Symposium on Relativistic Astrophysics, 3–7 July, Seoul, South Korea

2015 *On the binary systems associated with short and long GRBs and their detectability*, 14th Marcel Grossmann Meeting, Rome, Italy

2012 *Extreme systems in relativistic astrophysics*, 3rd Colombian Meeting on Astronomy and Astrophysics, Bucaramanga, Colombia

2012 *Strong, weak, electromagnetic, and gravitational interactions in neutron stars*, 13th Marcel Grossmann Meeting, Stockholm, Sweden

2011 *On the Einstein-Maxwell-Thomas-Fermi equations for white dwarfs and neutron stars*, 3rd Galileo-Xu Guangqi Meeting, Beijing, China

2009 *A the self-consistent treatments of neutron star configurations*, 11th Italian-Korean Symposium on Relativistic Astrophysics, Seoul, Korea

2009 *The role of compressed electrons: from nuclei to neutron stars*, 1st Galileo-Xu Guangqi Meeting, Shanghai, China

Speaker in Ordinary Sessions (partial list)

2018 *15th Marcel Grossmann Meeting on Relativistic Astrophysics*, 1-7 July, Rome, Italy

2018 *2nd Julio Garavito Armero Meeting on Relativistic Astrophysics*, 1–2 August, Bucaramanga, Colombia

2018 *The Third Zeldovich meeting*, 23–27 April, Minsk, Belarus

2017 *15th Italian-Korean Symposium on Relativistic Astrophysics*, 3–7 July, Seoul, South Korea

2017 *The Fifth Galileo-Xu Guangqi Meeting*, 25–30 June, Chengdu, China

2016 *Supernovae, Hypernovae and Binary Driven Hypernovae - An Adriatic Workshop*, Pescara, Italy

2015 *14th Italian-Korean Symposium on Relativistic Astrophysics*, Pescara, Italy

2013 *13th Italian-Korean Symposium on Relativistic Astrophysics*, Seoul, South Korea

2012 *26th Texas Symposium on Relativistic Astrophysics*, Sao Paulo, Brazil

2012 *III National Meeting on GRBs "Lampi su Napoli"*, Naples, Italy

2012 *39th COSPAR Assembly*, Mysore, India

2012 *13th Marcel Grossmann Meeting*, Stockholm, Sweden

2011 *12th Italian-Korean Symposium on Relativistic Astrophysics*, Pescara, Italy

2011 *Recent News from the Mev, GeV and TeV Gamma-Ray Domains*, Pescara, Italy

2010 *2nd Galileo-Xu Guangqi Meeting*, Ventimiglia, Italy

2009 *6th Italian-Sino Workshop on Relativistic Astrophysics*, Pescara, Italy

2009 *1st Sobral Meeting*, Fortaleza, Brazil

2008 *3rd Stueckelberg Workshop on Relativistic Field Theories*, Pescara, Italy

2009 *12th Marcel Grossmann Meeting On General Relativity*, Paris, France

2008 *APS April Meeting*, St. Louis, USA

2007 *4th Italian-Sino Workshop on Relativistic Astrophysics*, Pescara, Italy

2006 *Centro de Física Fundamental-Universidad de Los Andes*, Merida, Venezuela

2005 *Laboratorio de Astronomía y Física Teórica-Universidad del Zulia*, Maracaibo, Venezuela

2005 *Laboratorio de Astronomía y Física Teórica-Universidad del Zulia*, Maracaibo, Venezuela

2005 *Primera Reunión Colombo-Venezolana de Relatividad y Gravitación*, Cartagena, Colombia

2005 *Segundo Taller de Gravitación, Cosmología y Objetos Compactos*, Universidad de Los Andes, Merida, Venezuela

Outreach Activities

2018 *Three-dimensional view of hypernovae and gamma-ray bursts.* Delivered at the inauguration of the exhibition "Einstein Fermi e Heisenberg e la nascita della Astrofisica Relativistica" e "ICRANet e Cina", 12 December 2017 - 12 January 2018, Fondazione Marco Besso, Roma, Italy

2017 *"Vida" después de la "muerte": estrellas de neutrones y las explosiones más potentes del Universo.* Delivered in the "Café Científico" at Casa del Libro Total, Bucaramanga, Colombia

2017 *"Vida" después de la "muerte": estrellas de neutrones y las explosiones más potentes del Universo.* Delivered at Instituto Antonio Nariño, Barrancabermeja, Colombia

2017 *Simulando le onde gravitazionali.* Delivered at "La Notte dei Ricercatori", Pescara, Italy

2016 *Dai nuclei atomici alle stelle di neutroni ai lampi di raggi gamma.* Delivered at "La Notte dei Ricercatori", Pescara, Italy

2016 *Dai nuclei atomici alle stelle di neutroni ai lampi di raggi gamma.* Delivered at "La Notte dei Ricercatori", Pescara, Italy

2015 *Stelle di neutroni nelle esplosioni più potenti dell'universo: supernove e lampi di raggi gamma.* Delivered at "La Notte dei Ricercatori", Pescara, Italy

2014 *Dai nuclei alle pulsar ai gamma-ray bursts.* Delivered at the ICRANet for high-school students, Pescara, Italy

Reviewer and/or Referee

Scientific Journal Referee	*The Astrophysical Journal*, *The Physical Review (C,D)*, *Monthly Notices of the Astronomical Royal Society*, *Astronomy and Astrophysics*, *Physics Letters B*, *Nuclear Physics A*, *European Journal of Physics*, *Astrophysics and Space Science*, *Researches in Astronomy and Astrophysics*, *Canadian Journal of Physics*, *Advances and Space Research*, *Universe*, *Symmetry*, *Mathematical Reviews of the American Mathematical Society*
Projects Referee	Estonian Research Council (ETAg), Estonia
	Science of Frontier 2019, National Council of Science and Technology, CONACYT-Gobierno de México, Mexico
	Agencia Nacional de Promoción Científica y Tecnológica and Fondo para la Investigación Científica y Tecnológica del Ministerio de Ciencia, Tecnología e Innovación Productiva, Argentina
Scientific Advisor	National Center of Science and Technology Evaluation, Ministry of Education and Science, Kazakhstan

Memberships

INAF, Istituto di Astrofisica e Planetologia Spaziali

Member of the Italian Physical Society

Member of the American Physical Society

Member of the International Astronomical Union – Division D "High Energy Phenomena and Fundamental Physics"

Member of the Brazilian Physical Society

Member of the Colombian Academy of Physical and Natural Sciences – Node AstroCO-IAU

Prizes and Awards

Fellowship 2023	Senior Visiting Professor Fellowship, CAPES, Brazil
Prize 2021	Premio Lucio Colletti, Rome, Italy
Award 2021	Third Award in the Gravity Research Foundation essay competition, Gravity Research Foundation, USA
Award 2019	Third Award in the Gravity Research Foundation essay competition, Gravity Research Foundation, USA
Award 2016	Distinguished Award, Universidad Industrial de Santander, Bucaramanga, Colombia
Fellowship 2013-2016	Senior Visiting Professor Fellowship, CAPES-ICRANet Program, Brazil
Fellowship 2010	Postdoctoral Fellowship, Sapienza University of Rome, Rome, Italy
Fellowship 2006-2009	Ph.D. Fellowship, International Relativistic Astrophysics Ph. D. Program, Sapienza University of Rome, Italy

Award 2005 *National Prize Otto de Greiff to the best undergraduate thesis*, August 2006. Best undergraduate thesis of Natural Sciences in Colombia 2005: *Equilibrium of binary systems involving one extreme object in the stationary vacuum case*, Bucaramanga, Colombia

Award 2005 Awarded undergraduate thesis: *Equilibrium of binary systems involving one extreme object in the stationary vacuum case*, May 2005. Physics Department, Universidad Industrial de Santander, Bucaramanga, Colombia

Fellowship 2002 Distinguished student, Physics Department, Universidad Industrial de Santander, Bucaramanga, Colombia

Award High-School Award for the results in the National Test of Knowledge (371/400) in 1999. Instituto Antonio Nariño, Barrancabermeja, Colombia

Award 1999 First place in the XV Natural Sciences Olympiads, 1999. Award: fellowship to pursue any university career at Universidad Autónoma de Bucaramanga (UNAB)-Instituto Caldas, Bucaramanga, Colombia

PUBLICATION LIST JORGE A. RUEDA H.

[1] M. F. Sousa, J. G. Coelho, J. C. N. de Araujo, S. O. Kepler, and J. A. Rueda, ApJ **941**, 28 (2022), arXiv:2208.09506 [astro-ph.SR].
[2] G. A. Carvalho, R. C. d. Anjos, J. G. Coelho, R. V. Lobato, M. Malheiro, R. M. Marinho, J. F. Rodriguez, J. A. Rueda, and R. Ruffini, ApJ **940**, 90 (2022), arXiv:2208.00863 [gr-qc].
[3] J. A. Rueda, L. Li, R. Moradi, R. Ruffini, N. Sahakyan, and Y. Wang, ApJ **939**, 62 (2022), arXiv:2204.00579 [astro-ph.HE].
[4] J. A. Rueda, R. Ruffini, L. Li, R. Moradi, J. F. Rodriguez, and Y. Wang, Phys. Rev. D **106**, 083004 (2022), arXiv:2203.16876 [astro-ph.HE].
[5] L. M. Becerra, R. Moradi, J. A. Rueda, R. Ruffini, and Y. Wang, Phys. Rev. D **106**, 083002 (2022), arXiv:2208.03069 [astro-ph.HE].
[6] F. Rastegarnia, R. Moradi, J. A. Rueda, R. Ruffini, L. Li, S. Eslamzadeh, Y. Wang, and S. S. Xue, European Physical Journal C **82**, 778 (2022), arXiv:2208.14177 [astro-ph.HE].
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PROFESSOR REMO RUFFINI

Short CV of Professor Remo Ruffini

Director of ICRANet, coauthor of more than 800 scientific publications and 13 books, Remo Ruffini received his doctorate at Sapienza in Rome in 1967. He taught in Hamburg, at Princeton University and the Institute for Advanced Study, in Japan, Australia and CBPF (Brazil). Some of his major results: boson stars, "Introducing the Black Hole" with J.A. Wheeler, and the limiting critical mass of neutron stars. He identified the first black hole in our Galaxy using UHURU satellite data with Giacconi (Nobel recipient 2002), and received the Cressy Morrison Award (1973). Returning to Sapienza (1978), he promoted a Rome-Stanford collaboration on gravitational wave detectors. With European, US and Chinese institutions he established the International Center for Relativistic Astrophysics (ICRA) and later ICRANet in Italy, Armenia, France and Brazil (2005). He developed an understanding of gamma ray bursts, confirmed by the largest telescopes on Earth and from space: from their discovery in 1973, to their cosmological origin in 1997, to determining seven different GRBs families and their conceptual understanding, in 2018. This has enabled GRBs, the largest explosions in the Universe, to be used to enlighten our comprehension of our Universe.

Prof. Remo Ruffini is coauthor, among others, of the following books (http://www.icranet.org/RuffiniBooks):

1. (with J. Bardeen, B. Carter, H. Gursky, S. Hawking, I. Novikov and K. Thorne) "Black holes", Ed. B. and C. de Witt, Gordon and Breach, New York, 1973;
2. (with M. Rees and J.A. Wheeler) "Black Holes, Gravitational Waves and Cosmology", Gordon and Breach N.Y. 1974, also translated in Russian as "Cernie Diri Gratazionnie Volni I Kosmologia", Mir, Moscow 1974;
3. (with H.Gursky) "Neutron Stars, Black Holes and Binaries Sources", D. Reidel, Dordrecht, 1975;
4. (with R. Giacconi et al.) "Physics and Astrophysics of Neutron Stars Black Holes", North Holland Pub. Co. Amsterdam 1978;
5. (with Humitaka Sato) "Black Holes", in japanese, Chuo Koron-Sha, Tokyo 1976;
6. (with Fang Li Zhi) "Basic Concepts in Relativistic Astrophysics", in chinese, Science Press, Beijing 1981, also translated into english,, World Scientific, Singapore 1983;
7. (with Francesco Melchiorri) "Gamow Cosmology", North Holland Pub. Co., Amsterdam,1986;

8. (with H. Ohanian) "Gravitation and Spacetime" W.W. Norton and Co., New York 1976;
9. (with H. Ohanian) "Gravitazione e Spazio-Tempo" Zanichelli, Bologna 1997;
10. (with H. Ohanian) "Gravitation and Spacetime" W.W. Norton and Shin Won Agency Co., Seoul, 2001.

Scientific selected publications of Remo Ruffini, from SAO/NASA Astrophysics Data System (ADS)
More than 800 publications: https://tinyurl.com/yczc7bov

Awards received

- Cressy Morrison award of the New York Academy of Sciences , 1972.
- Fellow of the American Physical Society 1974-
- Fellow of Alfred P. Sloan Foundation, 1974-76.
- Space Scientist of the Year Award, 1992.
- Honorary Professor of University of Kirghizia, 1998-
- Commander of the Order of Merit of the Italian Republic, 2019 -
- Delfino d'Oro of Pescara Award, 2019.
- Rosone d'oro of Pianella Award, 2019.

Surname Name **Photo**

Vereshchagin Gregory

Position: professor
Period covered: 2022

I Scientific Work

This year scientific work was focused on the following projects:

- Kinetics of Degenerate Electron–Positron Plasmas (with M.A. Prakapenia)

Relativistic plasma can be formed in strong electromagnetic or gravitational fields. Such conditions exist in compact astrophysical objects, such as white dwarfs and neutron stars, as well as in accretion discs around neutron stars and black holes. Relativistic plasma may also be produced in the laboratory during interactions of ultra-intense lasers with solid targets or laser beams between themselves. The process of thermalization in relativistic plasma can be affected by quantum degeneracy, as reaction rates are either suppressed by Pauli blocking or intensified by Bose enhancement. In addition, specific quantum phenomena, such as Bose–Einstein condensation, may occur in such plasma. In this review, the process of plasma thermalization is discussed and illustrated with several examples. The conditions for quantum condensation of photons are formulated. Similarly, the conditions for thermalization delay due to the quantum degeneracy of fermions are analyzed. Finally, the process of formation of such relativistic plasma originating from an overcritical electric field is discussed. All these results are relevant for relativistic astrophysics as well as for laboratory experiments with ultra-intense lasers.

- Relativistic degeneracy and pair creation in external electric field (with M.A. Prakapenia)

The relativistic Boltzmann equation with source term describing electron-positron pair creation in uniform homogeneous overcritical electric field is solved together with Maxwell equation describing time evolution of the electric field. Pauli blocking effects are taken into account for the first time. Non-equilibrium kinetics for strongly degenerate relativistic plasma is considered, including plasma oscillations and particle interactions.

- The motion and radiation of a test charged particle in the vicinity of a black hole (with S. O. Komarov, A. K. Gorbatsievich and A. S. Garkun)

Point charge, radially moving in the vicinity of a black hole is considered. Electromagnetic field in wave zone and in the small neighborhood of the charge is calculated. Numerical results of the calculation of the spectrum of electromagnetic radiation of the point charge are presented. Covariant approach for the calculation of electromagnetic self-force is used for the case of the slowly moving charge. Numerical results for the self-force in the case of slow motion of the particle are obtained and compared to the results in literature.

- Is magnetically dominated outflow required to explain GRBs? (with D. Begue and L. Li)

The composition of relativistic outflows producing gamma-ray bursts is a long standing open question. One of the main arguments in favor of magnetically dominated outflows is the absence of photospheric component in their broadband time resolved spectra, with such notable examples as GRB 080916C. Here we perform accurate analysis of time resolved spectra of this GRB and confirm the previous detection of additional spectral component in GRB 080916C. We show that this subdominant component is consistent with the photosphere of ultrarelativistic baryonic outflow, deep in the coasting regime. We argue that, contrary to previous statements, the magnetic dominance is not required for interpretation of observations of this GRB. Moreover, simultaneous detection of high energy emission in its prompt phase requires departure from a simple one-zone emission model.

II Conferences and educational activities

II a Conferences and Other External Scientific Work

- talk “Kinetic effects in nonequilibrium electron-positron plasmas”, Prof. Remo Ruffini Festschrift. A conference in celebration of Prof. Remo Ruffini 80th birthday, ICRANet Seat at Villa Ratti, Nice (France) and online, 16-18 May 2022.
- talk “Photospheric emission from relativistic cocoons”, the 6th Bego Rencontre Summer School, ICRANet Seat at Villa Ratti, Nice (France) and online, 4-14 July 2022.

II b Work With Students

II c Diploma thesis supervision

II d Other Teaching Duties

- consultant on the first lecture course on theoretical astrophysics for theoretical physics students at the Belarusian State University

- consultant on the lecture course on relativistic kinetic theory for theoretical physics students at the Belarusian State University

II e. Work With Postdocs

- Mikalai Prakapenia: Kinetics of nonuniform and (or) anisotropic relativistic plasma with correlations
- Stanislav Komarov: the motion and radiation of a test charged particle in the vicinity of a black hole

III. Service activities *[activities carried out in collaboration with ICRANet (e.g. teaching activities, conferences etc...) and outside ICRANet (teaching activities in your university etc…]*

III a. Within ICRANet

- member of ICRANet faculty
- coordination of cooperation with the Belarusian State University
- coordination of cooperation with the National Academy of Sciences of Belarus
- coordination of activities in ICRANet-Minsk center
- editing the proceedings of the 16th Marcel Grossman Meeting, with 390 papers, published by World Scientific in December 2022: https://doi.org/10.1142/13149
- editorial work on collected papers of Remo Ruffini, submitted for the proceedings of 17th Italo-Korean symposium
- editing the Special Issue "Kinetic Processes in Relativistic Domain" of the Universe journal https://www.mdpi.com/journal/universe/special_issues/KPRD with 6 papers
- supervision of the ICRANet newsletter

III b. Outside ICRANet

- PI in the Joint BRFFR – ICRANet – 2021 project, with the title: "Kinetics of nonuniform and (or) anisotropic relativistic plasma with correlations"
- PI in the Joint BRFFR – ICRANet – 2021project, with the title: "The motion and radiation of a test charged particle in the vicinity of a black hole"

IV. Other

2022 List of Publication

1. Gregory Vereshchagin and Mikalai Prakapenia, "Kinetics of Degenerate Electron–Positron Plasmas", Universe 2022, 8, 473.
2. Gregory Vereshchagin, Liang Li and Damien Bégué, "Is magnetically dominated outflow required to explain GRBs?", MNRAS Volume 512 (2022), pp.4846-4851
3. S. O. Komarov, A. K. Gorbatsievich, A. S. Garkun and G. V. Vereshchagin, "Electromagnetic radiation and electromagnetic self-force of a point charge in the vicinity of Schwarzschild black hole", arXiv:2211.04544, to appear in NPCS.

Surname Name **Xue She-Sheng** **Photo**

Position: ICRANet Faculty

Period covered: 2020 -- 2022

I Scientific Work

Kerr black hole in an external magnetic field, and strongly pulsating electromagnetic field in gravitational collapse and heavy atoms, as well as their relevance to Gamma-Ray Bursts (GRBs) physics.

Strong electromagnetic field in compact stars and heavy atoms and its relevance to their structure and properties.

Pair production rates and radiation in strong and time-varying electromagnetic fields, and its applications in physics and astrophysics.

Pair production and interactions of fields and matter in the cosmological evolution within the framework of Einstein-Maxwell theory.

Four-fermion interactions of Einstein-Cartan theory and its resulted particle spectra for matter and dark matter.

The opacity of high energy cosmic particles in terms of their energy and travelling distance.

See the following list of publications.

II Conferences and educational activities

(II a) Conferences and Other External Scientific Work

Participating the preparation of ICRANet agreements with Institutions of China (2018-2022). participation and organization regular online meeting between ICRANet and Chinese Institutions.

Prof. Remo Ruffini Festschrift. A conference in celebration of Prof. Remo Ruffini 80th birthday, May 16-18, 2022, Nice and online, MG16 Awards ceremony, May 17, 2022 (Nice, France) and June 1, 2022 (Moscow, Russia)

The 6th Bego Rencontre Summer School, July 4 - 14, 2022, Nice and online

The European Researchers' Night, September 30, 2022, online event

(II b) Work With Students and young researchers

Stefanon, Campion, Wang Yu, Rahim Moradi, Li Liang and Luis Gabriel Gómez Díaz, David Melon Fuksman, Yu Ling Chang, Maryam Amiri, B. Elsan, Panah and Rashid Riahi, Seddigheh Tizchang, Somayye Mahmoudi, as well as Takahiro Hayashinaka, Sehar Ajmal, Li-Yang Gao, Ze-Wei Zhao, YunLong Zheng, Sareh Eslamzadeh Askestani (supported by their nations).

(II c) Diploma thesis supervision (2012-2022)

Stefanon, Campion, Yuanbin Wu, Handrik Ludwig, Eckhard Strobel, and Clement Stahl (all are Erasmus Mundus Ph.D. students), their main publications: 12 in Phys. Rev. , and 6 in Nucl. Phys., Phys. Lett.

(II d) Other Teaching Duties (2012-2022)

Teaching courses in Nice and Les Houches schools for IRAP Ph.D. Erasmus Mundus students.

(II e) Work With Professors and Postdocs inside and outside ICRANet (2012-2022)

R. Ruffini, H. Kleinert, G. Vereshchagin, J. Rueda, C. Bianco, W.B. Han, I. Siutsou, C. Argulles, C. Gruber, M. Zarei, M. Abdi, R. Mohammadi, D. Bégué, E. Bavarsad and Sang Pyo Kim, S. Shakeri, F. Hajkarim, F. Romeo, O. Panella, R. Leonardi, S. Hao. A. Gurrola, M. Haghighat, David J. E. Marsh, C.-J. Xia, R.-X. Xu, S.-G. Zhou, D. Gregoris, T. Adormo, Daniele Gregoris, Xin Zhang

III. Service activities *[activities carried out in collaboration with ICRANet (e.g. teaching activities, conferences etc...) and outside ICRANet (teaching activities in your university etc…]*

III a. Within ICRANet

Participating organization of ICRANet Seminars and ICRANet outreach activity.
Participating preparation of ICRANet Newsletter and activity report. Working with ICRANet secretary administration.

III b. Outside ICRANet

Official association to INFN Perugia, collaboration with INFN colleagues. Collaborations with Chinese and Iranian students and researchers, as well as other scientists worldwide. Visiting Chinese Institutions IHEP, ITP, and USTC CAS as well as Tsinghua University, Sun Yet-San University and Hang Zhou University of technology that are in cooperation with ICRANet .

IV. Other

The List of Publications (2021 -- 2022)

R. Moradi, J. A. Rueda, R. Ruffini, Liang Li, C. L. Bianco, S. Campion, C. Cherubini, S. Filippi, Y. Wang, S. S. Xue, `` Nature of the ultrarelativistic prompt emission phase of GRB 190114C'', Phys. Rev. D 104, 063043 (2021), https://arxiv.org/abs/2110.12410

R Ruffini, R Moradi, J A Rueda, L Li, N Sahakyan, Y-C Chen, Y Wang, Y Aimuratov, L Becerra, C L Bianco, C Cherubini, S Filippi, M Karlica, G J Mathews, M Muccino, G B Pisani, S.- S. Xue, `` The morphology of the X-ray afterglows and of the jetted GeV emission in long GRBs'', Monthly Notices of the Royal Astronomical Society, Volume 504, Issue 4, July 2021, Pages 5301–5326, https://arxiv.org/abs/2103.09142

F. Rastegarnia, R. Moradi, J. A. Rueda, R. Ruffini, Liang Li, S. Eslamzadeh, Y. Wang, S. S. Xue, Eur. Phys. J. C (2022) **82**: 778, `` The structure of the ultrarelativistic prompt emission phase and the properties of the black hole in GRB 180720B'', https://arxiv.org/abs/2208.14177

R. Ruffini, et.al. `` Self-similarity and power-laws in GRB 190114C '', arXiv:1904.04162 and ``Self-Similarities and Power-laws in the Time-resolved Spectra of GRB 190114C, GRB 130427A, GRB 160509A, and GRB 160625B'' arXiv:1910.12615; `` On the role of the Kerr-Newman black hole in the GeV emission of long gamma-ray bursts '' arXiv:1803.05476.

She-Sheng Xue "W boson mass tension caused by its right-handed gauge coupling at high energies? ", Nuclear Physics B Volume 985, December 2022, 115992 https://arxiv.org/abs/2205.14957

S.-S. Xue "Spontaneous Peccei-Quinn symmetry breaking renders sterile neutrino, axion and χboson to be candidates for dark matter particles ", Nuclear Physics B Volume 980, July 2022, 115817, https://arxiv.org/abs/2012.04648

She-Sheng Xue "Higgs boson origin from a gauge symmetric theory of massive composite particles and massless $W\pm$ and $Z0$ bosons at the TeV scale ", https://arxiv.org/abs/2210.04825

She-Sheng Xue "Massive particle pair production and oscillation in Friedman Universe: dark energy and matter interaction ", https://arxiv.org/abs/2203.11918

Li-Yang Gao, She-Sheng Xue, Xin Zhang "Dark energy and matter interacting scenario relieves $H0$ and $S8$ tensions ", https://arxiv.org/abs/2212.13146

S.-S. Xue "Massive particle pair production and oscillation in Friedman Universe: its consequence on inflation", to appear in European Journal of Physics C https://arxiv.org/abs/2112.09661

Li-Yang Gao, Ze-Wei Zhao, She-Sheng Xue, Xin Zhang "Relieving the $H0$ tension with a new interacting dark energy model ", JCAP 07 (2021) 005, https://arxiv.org/abs/2101.10714

S. Campion, J. A. Rueda, S. S. Xue, R. Ruffini, "Magnetic field screening process in a Kerr Black Hole ", Astronomy Reports, 2021, Vol. 98, No. 1, and Physics Letters B, Volume 820, 10 September 2021, 136562 https://arxiv.org/abs/2002.11681

Adjunct Professors of the Faculty

Aimuratov Yerlan

Position current:
Researcher at Fesenkov Astrophysical Institute, Almaty, Kazakhstan
Postdoc/Senior Lecturer at al-Farabi Kazakh National University

Position former:
EMJD IRAP V cycle PhD student
University of Rome "La Sapienza" (defended 25.02.2020)

Period covered: January-December 2022

I Scientific Work

GRB, GRB-SN, Wolf-Rayet stars: observation and analysis

II Conferences and educational activities

II a Conferences and Other External Scientific Work

- DAWN Winter School, 07–11 February 2022, Copenhagen, Denmark (online)
- Prof. Remo Ruffini Festschift, 16–18 May 2022, Nice, France (online)
- The 6thBego Rencontre Summer School, 04–14 July 2022, Nice, Pescara (online)

II b Work With Students

- none

II c Diploma thesis supervision

- TursynbekYernazarov (doctoral student, al-Farabi Kazakh National University)
- IldanaIzmailova (master student, al-Farabi Kazakh National University)
- Adel Umirbayeva (master student, al-Farabi Kazakh National University)
- Maigul Nurmukhametova (master student, al-Farabi Kazakh National University)
- Ruslan Spassyuk (bachelor student, al-Farabi Kazakh National University)

II d Other Teaching Duties

- Introduction to Nuclear Astrophysics (al-Farabi Kazakh National University)

II e. Work With Postdocs

- GRB-SN with ICRANet postdocs Yu Wang, Rahim Moradi and Liang Li

III. Service activities*[activities carried out in collaboration with ICRANet (e.g. teaching activities, conferences etc...) and outside ICRANet (teaching activities in your university etc…]*

III a. Within ICRANet

- oral talk "Redshift Estimates for Short Gamma-Ray Bursts from the Fermi-GBM Catalogue Using Ep,i-Eiso Correlation", Prof. Remo Ruffini Festschift. A conference in celebration of Prof. Remo Ruffini 80° birthday, 16–18 May 2022, Nice, France (online)
- oral talk "Gamma-Ray Bursts Associated with Supernovae. Case Studies: 190114C, 190829A, 130427A", The 6thBego Rencontre Summer School, 04–14 July 2022, Nice, Pescara (online)

III b. Outside ICRANet

- monthly scientific seminars at Fesenkov Astrophysical Institute
- seminars at al-Farabi Kazakh National University
- participation at DAWN Winter School, 07–11 February 2022, Copenhagen, Denmark (online)

IV. Other

- visiting scientist at ICRANet-Pescara, 11 June–31 July 2022

2022 List of Publication

- https://orcid.org/0000-0001-5717-6523
- GCN Circular Archive—15 telegrams

ARGÜELLES CARLOS RAÚL

Position: ICRANet Adjunct professor of the Faculty; Researcher (permanent position) at CONICET (IALP-UNLP)– Argentina
Period covered: 2022

I Scientific Work

Theoretical and phenomenological aspects of particle Dark Matter, self-gravitating systems, Numerical Relativity, Galactic Dynamics, Cosmology, Neutrino Physics beyond standard model.

II Conferences and educational activities

II a Conferences and Other External Scientific Work

- Invited (plenary) speaker at the “Friends of Friends Hybrid Meeting 2022” at UNC, Córdoba, Argentina, April, 18th-22th, 2022

- Invited speaker at “Journées scientifiques ‘Galaxies’ du PNCG 2022”, at Strasbourg Observatory, Strasbourg, France, 20th-22th June 2022

- Invited speaker at “6th Bego Rencontre Summer School”, Nice, France, July, 4th-14th, 2022

- Scientific visit at ICRANet, Pescara-seat, Italy, July 14th-21th, 2022

- Poster presentation “Fitting the Milky Way’s rotation curve with state-of-the-art machine learning tools”, at The University of Chicago AI+Science Summer School, August 8th-12th, 2022

- Invited (plenary) speaker at the “ICTP-SAIFR/ Principia Workshop On the Nature of the Dark Matter”, Sao Paulo, Brasil, November 2nd-4th, 2022

II b Work With Students

- Direction of a Master in Science Thesis of a graduated student from Argentina (Ms. Carolina Millauro – University of Buenos Aires). Thesis title:

“Accretion disks in the surroundings of fermionic dark matter compact cores” Area: Physics. Defended Thesis, August 2022.

II c Diploma thesis supervision

- Ph.D Thesis director of Mr. Santiago Collazo – Beca doctoral CONICET, Argentina. Period 2022

- Ph.D Thesis director of Ms. Valentina Crespi – Beca doctoral CONICET, Argentina. Period 2022

II d Other Teaching Duties

- Assistant Professor position in Theoretical Physics at La Plata National University (UNLP – Physics department)

II e. Work With Postdocs

- Collaboration in a research project in N-body Cosmological simulations with the Postdoc Clement Stahl (Strasbourg Observatory, France)

III. Service activities *[activities carried out in collaboration with ICRANet (e.g. teaching activities, conferences etc...) and outside ICRANet (teaching activities in your university etc…]*

III a. Within ICRANet

Adjunct professor of the Faculty. Scientific collaborator with the Astroparticle Physics and Dark Matter group.

III b. Outside ICRANet

Researcher (permanent position) at CONICET – Argentina. Working place: IALP - UNLP, La Plata, Argentina. Paseo del Bosque, Casco Urbano, B1900FWA La Plata, Buenos Aires. Phone: +54 0221 4236593 Int. 1052. Teaching activities as Assistant Professor at UNLP. Master in Science Thesis advidor and Ph.D thesis advisor.

IV. Other

2022 List of Publication

1. Argüelles, C. R.; Mestre, M. F.; Becerra-Vergara, E. A.; Crespi, V.; Krut, A.; Rueda, J. A.; Ruffini, R., “What does lie at the Milky Way centre? Insights from the S2 star orbit precession”, Monthly Notices of the Royal Astronomical Society 511 (2022), issue 1, pp L35-L39.

2. Yunis, R. I; Argüelles, C. R., Scóccola, C. G.; Nacir, D. L.; Giordano, G.“Self-interacting dark matter in cosmology: accurate numerical implementation and observational constraints ”, Journal of Cosmology and Astroparticle Physics (2022), Issue 02, id.024, pp. 48.

3. Argüelles, C. R.; Becerra-Vergara, E. A.; Krut, A.; Yunis. R.; Rueda, J. A.; Ruffini, R., “Reshaping our understanding on structure formation with the quantum nature of the dark matter ”, International Journal of Moden Physics D 31 (2022), issue 2, id. 2230002.

Becerra Bayona Laura Marcela

Position: Adjunct proffesor
Period covered: 2021-present

I Scientific Work

I have worked on the Induced Gravitational Collapse (IGC) paradigm in which a carbon-oxygen core explodes in a Type Ib/c supernovae in presence of a close neutron star companion. The supernovae triggers an hypercrytical accretion into the neutron star and depending of the initial binary parameters the system can have different fates. In a first scenario, also referred as binary-driven hypernova (BdHNe), the binary is enough bound, so the accretion rate to NS allows to it reaches its critical mass, and collapse to a black hole with a GRB emission. A second scenario can happen for binary systems with larger binary separations, then the hypercritical accretion onto the NS is not sufficient to induced its gravitational collapse. Instead of a GRB emission, a X-ray flash (XRF) is produced. I have worked on the hypercrytical accretion process, following the evolution of the NS, in order to characterized the observational signatures in each scenario.

I have also worked on the evolution of postmergers remnants of white dwarfs binary systems. The simulations of coalescence between white dwarfs have shown that the final result consists of a central remnant made of the undisturbed primary star. The secondary star is totally disrupted and about half of the material is accreted by the primary, forming a hot corona surrounding it, and the rest of the material forms a rapidly rotating Keplerian disk, since little mass is ejected from the system during the coalescence process. I have modelled the evolution of this last system, exploring the different initial conditions that allows to the white dwarfs collapse to a neutron star or explode as a Type Ia supernovae.

II Conferences and educational activities

II a Conferences and Other External Scientific Work

- *IRAP Ph.D. Erasmus Mundus Workshop,* Supernovae, Gamma-ray bursts and the induced gravitational collapse, May 11th–16th, 2014 Les Houches (France). Asistant.
- *1*st Scientific ICRANet Meeting in Armenia: Black Holes: the largest energy sources in the Universe, June 30th –July 4th, 2014. Yerevan, Armenia. Asistant
- Third Bego Rencontres. IRAP Ph.D. Erasmus Mundus school. September 8th-19th, 2014 . “Hypercritical Accretion in Binary-Driven Hypernova”. L. Becerra, J. Rueda and R. Ruffini
- Conference Swift 10 Years of Discovery. Rome, Italy.Decembre 1st-5th, 2014. “Hypercritical Accretion, Induced Gravitational Collapse, and Binary-Driven Hypernova”. L. Becerra, et. al.
- The Second ICRANet César Lattes Meeting. Rio de Janeiro, Brasil. April 13rd-18,th 2015. “Angular Momentum Tranfer During the Hypercritical Accretion in Binary-Driven-Hypernova” L. Becerra, F. Cippoletta, F. Fryer, J. Rueda and R. Ruffini.
- Fourteenth Marcel Grossmann Meeting – MG14. Rome, Italy. July 12nd-18th, 2015:
    1. “Angular Momentum Tranfer Role in the Hypercritical Accretion of Binary-Driven-Hypernova” L. Becerra, F. Cippoletta, F. Fryer, J. Rueda and R. Ruffini.
    2. “Induced compression by angular momentum loss in fast rotating, magnetized Super-Chandraskehar white dwarfs” L. Becerra, E. Garcia-Berro, P. Loren-Aguilar and J. Rueda
- Supernovae, Hypernovae and Binary Driven Hypernovae. An Adriatic Workshop. Pescara, Italy. July 20-30,2016:

1. “The spin evolution of fast rotating,magnetized super-Chandraskehar white dwarfs in the aftermath of white dwarfs mergers” L. Becerra, E. Garcia-Berro, P. Loren-Aguilar and J. Rueda.
2. “On the induced gravitational collapse scenario of gamma-ray bursts associated with supernova”. L.Becerra, C. L. Biando, C. Fryer, J.A. rueda, R.Ruffini.

- XV Latin American Regional IAU Meeting (LARIM). Cartagena, Colombia. October 3-7/2016. “Hypercritical Accretion in the Induced Gravitational Collapse” L.Becerra, C. L. Biando, C. Fryer, J.A. rueda, R.Ruffini.

- The 2017 Annual meeting of the Division of Gravitation and Relativistic Astrophysics of the Chinese Physical Society - Fifth Galileo-Xu Guangqai Meeting. Chengdu, China. June 25-30, 2017. “SPH simulations of the induced gravitational collapse scenario”. L. Becerra, C. L. Bianco, F. Fryer, J. A. Rueda and R. Ruffini

- International Conference on Gravitation: Joint Conference of ICGAC-XIII and IK15. Seoul, Korea. July 3-7, 2017. “On the induced gravitational collapse”. L. Becerra, C. L. Bianco, F. Fryer, J. A. Rueda and R. Ruffini.

- THESEUS (Transient High Energy Sky and Early Universe Surveyor) Workshop, Naples, Italy. October 5-6, 2017. “On the induced gravitational collapse scenario”. L. Becerra, C. L. Bianco, F. Fryer, J. A. Rueda and R. Ruffini.

2022 List of Publication

- L. Becerra, R. Moradi, J. A. Rueda, R. Ruffini, Y. Wang. First minutes of a binary-driven hypernova. Physical Review D 106 (8 Oct. 2022) p. 083002. DOi: 10.1103/PhysRevD.106.083002

- L. Becerra, Andreas Reisenegger, Juan Alejandro Valdivia, Mikhail Gusakov. Stability of axially symmetric magnetic fields in stars. Monthly Notices of the Royal Astronomical Society 517.1 (Nov. 2022) pp. 560–568. DOi: 10.1093/mnras/stac2704

Bini Donato

Position: Current
Research Director (permanent position) at
Istituto per le Applicazioni del Calcolo "M. Picone," CNR
Via dei Taurini, 19 I-00185 Roma (IT).

I Scientific Work

The main topic of my interest is General Relativity, with special attention to classical aspects.

In particular, I'm interested in: analysis and interpretation of exact solutions of Einstein's field equations, spacetime splitting techniques, measurement process and the role of the observer in General Relativity, particle dynamics in certain fixed gravitational backgrounds (either test particles with scalar structure: the mass, or particles with internal structure: spinning test particles and particles with multipolar structure, quadrupolar and beyond), gravitational perturbations, gravitational waves. Currently, the main topics of interest for my research activities involve the PN-PM approximations of General Relativity, gravitational self-force, effective-one-body model, with applications to binary systems.

I'm an expert user of MAPLE™ tensor calculus packages.

II Conferences and educational activities

Conferences and Other External Scientific Work

Since 1988 I have participated in all the international meetings of the Marcel Grossmann series as well as all the conferences of the ICRA- ICRANet series. From 2016 I'm attending the Capra Meetings of the gravitational self-force community and as well as all meeting involving Post-Newtonian approximation, Post-Minkowskian approximation, Effective Field Theory and Effective One-Body approach.

Diploma thesis supervision
I've been supervisor of the Diploma thesis of several students at the University of Rome "La Sapienza", since 1995:
G. Spoliti, A. Merloni, C. Germani, C. Cherubini, G. Miniutti, G. Cruciani, A. Geralico, A. Lunari, M. De Mattia, D. Gregoris.

Ph.D thesis supervision
Dr. V. Montaquila, Physics departments of the University of Naples "Federico II.," year 2011.
Dr. M. Haney, IRAP Ph.D, University of Rome "Sapienza," year 2013.
Gabriel G. Carvalho (CAPES, Brazil and ICRANet), year 2016.

Teaching experiences
I'm Contract Professor of Physics since 2004 at the faculty of Medicine of the University Campus Biomedico, in Rome. From 2007-2009 I have also been Contract Professor of Physics at the Nursery School of the same university. I've been teaching monographic courses at various Ph.D. schools in Italy.

Work with associate researchers
A Geralico (Istituto per le Applicazioni del Calcolo "M. Picone," CNR, Rome, Italy)

III Service activities
Scientific collaboration with:
Prof. R.T. Jantzen (Villanova Univesity, USA and ICRANet);

Outside ICRANet
Scientific collaboration with:
Prof. T. Damour (IHES, Paris, France).

Other

For the years 2002-2004 I have been the leader of a collaboration project between the Italian Research Council (CNR) and the analogous institution in Venezuela. Title of the project: *Construction of 3d numerical models for the study of magnetohydrodynamics in gravitational physics and astrophysics*.
For the years 2007-2008 I have been the leader of young researchers projects of INDAM (Istituto Nazionale di Alta Matematica). Title of the project: *Light coordinates and spacetime topography*.
For the years 2008-2009 I have been the leader of young researchers projects of INDAM (Istituto Nazionale di Alta Matematica). Title of the project: *Sistemi di Posizionamento Globale relativistici*

I'm currently doing referee activity for a large number of international journals in the field of General Relativity and I'm a reviewer for Mathreview.

For the years 2017, 2018 and 2019 I've been awarded as **Outstanding Referee** from the journal Classical and Quantum Gravity (IOP).
In the year 2021 I've been awarded as **Outstanding Referee** from the American Physical Society.

2022 List of publications

1) Bini D., Mashhoon B., Obukhov Y. N.
Gravitomagnetic Helicity
Phys. Rev. **105**, no.6, 064028 (2022)
doi:10.1103/PhysRevD.105.064028
[arXiv:2112.07550 [gr-qc]].

2) Bini D. and Geralico A.,
Momentum recoil in the relativistic two-body problem: Higher-order tails
Phys. Rev. D **105**, no.8, 084028 (2022)
doi:10.1103/PhysRevD.105.084028
[arXiv:2202.03037 [gr-qc]].

3) Bini D. and A. Geralico,
Multipolar invariants and the eccentricity enhancement function parametrization of gravitational radiation
Phys. Rev. D **105**, no.12, 124001 (2022)
doi: 10.1103/PhysRevD.105.124001
[arXiv:2204.08077 [gr-qc]].

4) Bini D. and Mashhoon B.,
Static and Dynamic Melvin Universes
Phys. Rev. D **105**, no.12, 124012 (2022)
doi: 10.1103/PhysRevD.105.124012
[arXiv:2202.02033 [gr-qc]].

5) Bini D., Kauffman S., Succi S., Tello P. G.,
First Post-Minkowskian approach to turbulent gravity
Phys. Rev. D **106**, no.10, 104007 (2022)
doi: 10.1103/PhysRevD.106.104007
[arXiv:2208.03572 [gr-qc]].

6) Tello P.G., Bini D., Kauffman S, Succi S.,
Predicting today's cosmological constant via the Zel'dovich-Holographic connection
EPL, 2022 (to appear)
[arXiv:2208.08129 [gr-qc]].

7) Bini D., Damour T., Geralico A.
Radiated momentum in gravitational two-body scattering including time-asymmetric effects
Phys. Rev. D 2022 (to appear)
[arXiv:2210.07165 [gr-qc]].

8) Bini D., Damour T.,
Radiation-reaction and angular momentum loss at the second Post-Minkowskian order
Phys. Rev. D 2022 (to appear)
[arXiv:2211.06340 [gr-qc]].

9) Bini D., Geralico A., Jantzen R. T.
Petrov type I spacetime curvature: principal null vector spanning dimension
IJGMMP, 2022 (to appear)
e-Print: [arXiv:2111.01283 [gr-qc]]

Thomas Buchert

Position: Professor of Cosmology
Staff Member of CRAL, Head of Cosmology Group :
Université Lyon 1 and École Normale Supérieure Lyon
Adjunct Professor of the Faculty : ICRANet
Member of Euclid and 4MOST
PI: ERC advanced Grant ARThUs

Period covered: January 2022 - December 2022

I Scientific Work

(i) Comparison of Lagrangian perturbation schemes with exact solutions in GR.
(ii) CMB analysis and new statistics to detect the topology of the Universe.
(iii) SNOWMASS review.
(iv) Averaging formalism on the light cone.

II Conferences and educational activities

II a Conferences and Other External Scientific Work

- Spontaneous Workshop XIV https://www.cpt.univ-mrs.fr/~cosmo/SW_2022/index.php Cargèse, France (IAC)
- Workshop ERC ARTHUS Roundtable VII and IX, Lyon, France (LOC)

II b Work With Students
1 PhD student : Martin France (finalized).
II c Diploma thesis supervision:
2 Master students Master1: Aubin Courty, Niels Fardeau, ENS ;
II d Other Teaching Duties see below.
II e. Work With Postdocs :
Collaboration with Pratyush Pranav, Nezihe Uzun, Asta Heinesen, Hamed Barzegar, ERC postdocs, financed by the ERC advanced Grant "ARTHUS, PI: T. Buchert". Collaboration with Jan. J. Ostrowski (Warsaw), Ismael Delgado Gaspar (Warsaw).

III. Service activities *[activities carried out in collaboration with ICRANet (e.g. teaching activities, conferences etc...) and outside ICRANet (teaching activities in your university etc…]*

III a. Within ICRANet :

III b. Outside ICRANet :

Management of ERC advanced grant "ARTHUS, PI: T. Buchert", since September 2017.
Lecture : "Introduction to General Relativity", École Normale Supérieure, Lyon.
Exercises in "Fluidmechanics", Université Lyon 1.
Tutorials for future teachers at École Normale Supérieure, Lyon.

IV. Other Memberships in the *Euclid consortium* ("Theory" and "Clustering"), and in *4MOST*.

2022 List of Publications

peer-reviewed – published and accepted

ad (i) – Buchert T., Delgado Gaspar I., Ostrowski J.J..: 'On general-relativistic Lagrangian perturbation theory and its non-perturbative generalization'. Universe 8, 583 (2022).

ad (i) – Delgado Gaspar I., Buchert T., Ostrowski J.J.: 'Beyond relativistic Lagrangian perturbation theory. I. An exact-solution controlled model for structure formation'. Phys. Rev. D, in press (2022).

ad (iii) - Abdalla E. / Snowmass collaboration: 'Cosmology Intertwined: A review of the particle physics, astrophysics, and cosmology associated with the cosmological tensions and anomalies'. *JHEAp 34*, 49. (224 pages) (2022).

ad (iv) - Buchert T., Elst H.v., Heinesen A.: 'The averaging problem on the past null cone in inhomogeneous dust cosmologies'. Gen. Rel. Grav., in press (2022).

Followed 17 publications within the ERC advanced Grant (12 of which published or accepted.)

CHAKRABARTI SANDIP KUMAR

Position: Director and Distinguished Professor
Indian Centre for Space Physics

Period covered: 1.1.2022 to 31.12.2022

I Scientific Work

I completed numerical simulations of 2D and 3D mass transfer and proved that the average angular momentum is always sub-Keplerian

II Conferences and educational activities

II a Conferences and Other External Scientific Work

Several online conferences were arranged by ICSP. They are:

a. Chemical Evolution of the Universe since Big Bang and the Origin of Life (With Adamas University), December 15, 2022

b. Role of Small Telescopes in Exciting Areas of Observational Astronomy, November 22, 2022

c. Numerical Astrophysics of stars and Blackholes: December 13, 2022

d. 400 Years of Observational Astronomy (With Univ of Gour Banga): December 11, 2022

e. Forefront Areas of Research In Astronomy, Astrophysics and Space Science: 18th Sept, 2022

*f. Main Organizer of "*Black Hole Astrophysics: Observational Evidence and Theoretical Models" (E1.2) session at the 44th COSPAR Scientific Assembly 2022 (Athens)

g. Deputy Organizer of "Scientific Ballooning: Recent Developments in Technology and Instrumentation" *(PSB.1)* session at the 44th COSPAR Scientific Assembly 2022 (Athens)

II b Work With Students

1. I completed several works to fit the observational X-ray spectral from stellar and supermassive black holes.

2. I completed pseudo-Newtonian potential for Kerr geometry to incorporate this into numerical simulations of precession of accretion flows around black holes

3. I completed analysis of balloon borne experiment data to show that low cost balloon experiments without any pointing can also be used to identify strong X-ray sources.

II c PhD Degree thesis supervision

Currently supervising five PhD students. Five PhD students have received their PhD degree from Calcutta University in 2022. Three students have submitted their PhD Thesis. They are waiting for Viva examination.

II d Other Teaching Duties

None

II e. Work With Postdocs

None

III. Service activities *[activities carried out in collaboration with ICRANet (e.g. teaching activities, conferences etc...) and outside ICRANet (teaching activities in your university etc...]*

III a. Within ICRANet

III b. Outside ICRANet

IV. Other

2022 List of Publication

*1. 2022 JApA, 43, 90, 2022/12 Study of accretion flows around an ultraluminous X-ray source M82 X-1 using NuSTAR data; Mondal, Santanu; Palit, Biswaraj; Chakrabarti, Sandip K.

2. 2022 cosp, 44, 3348, 2022/07; Science with Low-cost Balloons at Indian Centre for Space Physics, Chakrabarti, Sandip Kumar

3. 2022 cosp, 44,2811, 2022/07, Phosphorus bearing species in the interstellar medium, Srivastav, Satyam; Sil, Milan; Bhat, Bratati and 10 more

3, 2022 cosp, 44, 2808,2022/07, Binding energy: a fundamental parameter to model interstellar chemistry, Sil, Milan; Gorai, Prasanta; Loison, J. -C. and 3 more

4. 2022 cosp, 44, 2750, 2022/07, Radiative transfer model to explain the observed line profiles of a hot molecular core, G31.41+0.31, Bhat, Bratati; Gorai, Prasanta; Mondal, Suman Kumar and 2 more

5, 2022 cosp, 44,2748, 2022/07, Explore the existence of noble gas related species in the crab nebula filamentary region, Das, Ankan; Sil, Milan; Bhat, Bratati and 3 more

6. 2022 cosp, 44, 2739, 2022/07, Aldehydes and their corresponding alcohols in the interstellar medium, Mondal, Suman Kumar; Gorai, Prasanta; Sil, Milan and 8 more

7, 2022 cosp, 44, 2054, 2022/07, Understanding the enigmatic microquasar SS 433 through High-Resolution X-ray Timing and Spectroscopy: Prospects for Colibrì, Chatterjee, Arka; Safi-Harb, Samar; Heyl, Jeremy and 4 more

8. 2022 cosp, 44, 2050, 2022/07, The nature of 2017-18 outburst of GX 339-4 and finding its relation between outburst and quiescence phases in two and half decades, Bhowmick, Riya; Debnath, Dipak; Chatterjee, Kaushik and 2 more

9. 2022 cosp, 44, 2046, 2022/07, X-ray properties of the BHC GRS 1716-249 during its failed outburst in 2016-17, Chatterjee, Kaushik; Debnath, Dipak; Chakrabarti, Sandip Kumar and 4 more

10. 2022, cosp, 44, 2042, 2022/07, Time lag properties in Black hole Binaries: Implication on Accretion Disk Geometry, Gopal Dutta, Broja; Chakrabarti, Sandip Kumar

11. 2022, cosp, 44, 2026, 2022/07, Why TCAF is the best bet to understand black hole accretion? Chakrabarti, Sandip Kumar

12. 2022, cosp, .44.1780, 2022/07, Inflow-Outflow Properties of the Black Hole Candidate XTE J1752-223 during its 2009-10 Outburst, Chatterjee, Kaushik; Debnath, Dipak; Chatterjee, Debjit and 4 more

13, 2022, cosp, 44, 895 , 2022/07, Statistical analysis of worldwide lightning and thunderstorm-induced atmospheric gravity waves using WWLLN and GNSS-TEC, Chowdhury, Swati; Kundu, Subrata; Ghosh, Soujan and 3 more

14. 2022, cosp, 44, 827, 2022/07, Modelling of Total Electron Content during geomagnetic storms with empirical orthogonal functions and an empirical TEC model (SSM-T1) over the low and mid-latitude region, Kundu, Subrata; Sasmal, Sudipta; Chakrabarti, Sandip Kumar

15, 2022 cosp, 44, 691, 2022/07, Study of lower Ionospheric irregularities during multiple earthquake event by using VLF radio sounding technique, Biswas, Sagardweep; Hayakawa, Masashi; Sasmal, Sudipta and 1 more

16. 2022, cosp, 44, 649, 2022/07, Seismogenic impression in earth's atmosphere as observed from multi-parametric approach, Sasmal, Sudipta; Chowdhury, Swati; Kundu, Subrata and 8 more

17. 2022, cosp, 44, 639, 2022/07, Study of geomagnetic storm-induced ionospheric changes over VLF signal propagation paths in mid-latitude D-region, Nwankwo, Victor U. J.; Denig, William; Chakrabarti, Sandip Kumar and 6 more

18. 2022, cosp, 44, 638, 2022/07, Satellite and ground-based observation of pre-seismic anomalies during Fukushima earthquake 2016, Kundu, Subrata; Chowdhury, Swati; Ghosh, Soujan and 4 more

19. 2022, cosp, 44, 636, 2022/07, Inhomogeneous behavior of the ionospheric electromagnetic perturbation found from the VLF signal observation during the multiple earthquake events

Biswas, Sagardweep; Sasmal, Sudipta; Chowdhury, Swati and 4 more

20. 2022, cosp, 44, 634, 2022/07, Satellite observation of lightning induced energetic particle bursts over the Indian subcontinent, Chowdhury, Swati; Sasmal, Sudipta; Brundell, James and 2 more

21. 2022, cosp, 44, 620, 2022/07, Terrestrial and solar-energetic impact on earth's ionosphere as observed from space-based techniques, Sasmal, Sudipta; Chowdhury, Swati; Kundu, Subrata and 1 more

*22. 2022 A&A, 663A, 178, 2022/07, Flux and spectral variability of Mrk 421 during its moderate activity state using NuSTAR: Possible accretion disc contribution? Mondal, S.; Rani, P.; Stalin, C. S.; Chakrabarti, S. K.; Rakshit, S.

*23. 2022 AdSpR, 69, 2930, 2022/04, Similarities and differences in accretion flow properties between GRS 1915+105 and IGR J17091-3624: A case study, Banerjee, Anuvab; Bhattacharjee, Ayan; Debnath, Dipak and 1 more

*24. 2022, RAA, 22c, 5016,2022/03, Transonic Accretion and Winds Around Pseudo-Kerr Black Holes And Comparison with General Relativistic Solutions, Bhattacharjee, Abhrajit; Chakrabarti, Sandip K.; Debnath, Dipak

25. 2022, mgm conf, 231, 2022, Accretion around low mass and supermassive black holes with TCAF, Mondal, S.; Chakrabarti, S. K.; Nandi, P.

26. 2022 mgm conf, 213, 2022, Understanding accretion flow properties of black hole candidates after implementation of the TCAF solution in XSPEC, Debnath, Dipak; Chakrabarti, Sandip K.; Mondal, Santanu and 5 more

*26. 2022, AdSpR, 69,415, 2022/01, Radiative transfer modeling of the observed line profiles in G31.41+0.31, Bhat, Bratati; Gorai, Prasanta; Mondal, Suman Kumar and 2 more

* Referreed Journal

Fisher Robert

Position: **Full Professor** in Physics
Graduate Program Director
University of Massachusetts Dartmouth
285 Old Westport Road
North Dartmouth, Ma. 02740
Tel. +1-508-999-8353
Email: robert.fisher@umassd.edu

Memberships: International Astronomical Union, American Physical Society, American Astronomical Society, National Society of Black Physicists

Period covered: 2021

I Scientific Work

- **Type Ia Supernovae**
- **Star Formation**
- **Physics of the Interstellar Medium**
- **Turbulence and Combustion**
- **Computational Fluid Dynamics**

II Conferences and educational activities

II a Conferences and Other External Scientific Work

II b Work With Students

II c Diploma thesis supervision

II d Other Teaching Duties

II e. Work With Postdocs

III. Service activities *[activities carried out in collaboration with ICRANet (e.g. teaching activities, conferences etc...) and outside ICRANet (teaching activities in your university etc…]*

III a. Within ICRANet

III b. Outside ICRANet

- Research advisor to 6 graduate students and 5 undergraduate students
- Graduate program director
- Instructor for classical physics, statistical mechanics, modern physics, and astrophysics courses

IV. Other

2022 List of Publications

D. Kosakowski, M. Ugalino, R. Fisher, O. Graur, A. Bobrick, H. Perets, "Using 44Ti Emission to Differentiate Between Thermonuclear Supernova Progenitors," accepted to the Monthly Notices of the Royal Astronomical Society: Letters. arXiv Journal

V. Tiwari, O. Graur, R. Fisher, I. Seitenzahl, S.C. Leung, K. Nomoto, H. Perets, K. Shen, "The Late-Time Light Curves of Type Ia Supernovae: Confronting Models with Observations," The Monthly Notices of the Royal Astronomical Society, 515, 3, 3703-3715, 2022. arXiv DOI

N. Roy, V. Tiwari, A. Bobrick, D. Kosakowski, R. Fisher, H. Perets, R. Kashyap, P. Lorén-Aguilar, E. García-Berro, "3D Hydrodynamical Simulations of Helium-Ignited Double-Degenerate White Dwarf Mergers," The Astrophysical Journal Letters, 932, L24, 2022. arXiv DOI

S. Neopane, K. Bhargava, R. Fisher, M. Ferrari, S. Yoshida, S. Toonen, E. Bravo, "Near-Chandrasekhar Mass Type Ia Supernovae from the Double-Degenerate Channel," Accepted for publication in The Astrophysical Journal, 925, 92, 2022. arXiv DOI

GRANT Mathews Photo

Position: James Wicker Wilson Adjunct Professor of Physics, ICRANet
Full Professor of Physics, and Director of the Center for Astrophysics, University of Notre Dame
Period covered: 2022

I Scientific Work

Relativistic numerical simulations of supernovae and binary neutron star mergers

II Conferences and educational activities
II a Conferences and Other External Scientific Work

II b Work With Students

II c Diploma thesis supervision

II d Other Teaching Duties

II e. Work With Postdocs

III. Service activities*[activities carried out in collaboration with ICRANet(e.g. teaching activities, conferences etc...) and outside ICRANet (teaching activities in your university etc…]*

III a. Within ICRANet

- *May 16, 2022 Invited Talk, Prof. Remo Ruffini Festschrift. A conference in celebration of Prof. Remo Ruffini 80th birthday, Nice, Fr (virtual), "Binary Neutron-star Mergers and the Quark-Matter Equation of State."*

III b. Outside ICRANet

Teaching at University of Notre Dame:

Particle Physics and Cosmology, PHYS50602, Spring 2022

Elementary Cosmology, PHYS10240, Fall, 2022

Conference Talks Outside ICRANet:

- *April 20, 2022 Contributed Talk, APS April meeting, "Contributed Talk, APS April meeting, "Postmerger gravitational waves as a probe of a crossover QCD transition in binary neutron-star mergers "*

- *May 16, 2022 Invited Talk, Prof. Remo Ruffini Festschrift. A conference in celebra- tion of Prof. Remo Ruffini 80th birthday, Nice, Fr (virtual), "Binary Neutron-star Mergers and the Quark-Matter Equation of State."*

- *July 21, 2022 Invited talk, International Workshop on Origin of Elements and Cos- mic Evolution: From Big-Bang to Supernovae and Mergers, Beihang Univ., Beijing (virtual), "Origin of heavy elements in the universe"*

- *Aug. 4, 2022 Plenary Talk, XVth Quark Confinement and the Hadron Spectrum Conference, University of Stravanger, Norway, "Neutron-Star Mergers and the Quark- Matter Equation of State"*

- *Sept.15, 2022 Invited talk, The 28th International Conference on Nuclear Physics (INPC22, Cape Town, South Africa, "The r-process and p-Process in CCSNe, col- lapsars, hypernovae and mergers, and their affect on Galactic chemical evolution "*

- *Oct.26, 2022 Invited talk, The 16th International Symposium on Origin of Matter and Evolution ofGalaxies (OMEG16), La Thanh Hotel, Hanoi, Vietnam, "Core-Collapse Supernovae, Binary* Neutron Stars, and the Equation of State at High Density"

IV. Other

2022List of Publication

- A. Kedia, G.J. Mathews, H.I. Kim, I.-S. Suh, "Binary neutron star mergers of quark matter based nuclear equations of state," in Proc. 16th Symposium on Nuclei in the Cosmos (NIC-XVI), EPJ Web of Conferences 260, 11004 (2022).

- L. Boccioli, G.J. Mathews, and E. P. O'Connor, "Effect of the Nuclear Equation of State on Relativistic-Turbulence Induced Core-Collapse Supernovae," in Proc. 16th Symposium on Nuclei in the Cosmos (NIC-XVI), EPJ Web of Conferences 260, 11025 (2022).

- H. Sasaki, Y. Yamazaki, T. Kajino, M. Kusakabe, T. Hayakawa, M.-K. Cheoun, Myung-Ki, H. Ko, G. J. Mathews, "Impact of hypernova νp-process nucleosynthesis on the galactic chemical evolution of Mo and Ru," Astrophys. J., 924, 29 (2022). DOI: 10.3847/1538-4357/ac34f8

- T. Maruyama A. B. Balantekin, M.-K. Cheoun, T. Kajino, and G. J. Mathews, "A relativistic quantum approach to neutrino and antineutrino emission via the direct Urca process in strongly magnetized neutron-star matter," Phys. Lett. B, 824, 136813 (2022), DOI: 10.1016/j.physletb.2021.136813

- L. Boccioli, G. J. Mathews, I.-S. Suh, E. P. O'Connor, "Effect of the Nuclear Equation of State on Relativistic-Turbulence Induced Core-Collapse Supernovae," Astrophys. J., 926, 147 (2022). DOI: 10.3847/1538-4357/ac4603

- M. A. Famiano, K. Mori, A. B. Balantekin, T. Kajino, M. Kusakabe, and G. J. Mathews, Relativistic Coulomb Screening in Pulsational Pair Instability Supernovae Astron. & Astrophys, 659, A97 (2022). DOI: 10.1051/0004-6361/202142433

- Y. Yamazaki, T. Kajino, G. J. Mathews, X. Tang, J. Shi, and M. A. Famiano, "Contribution of collapsars, supernovae, and neutron star mergers to the evolution of r-process elements in the Galaxy," Astrophys. J., 933, 122 (2022).

- A. Kedia, H. I. Kim, I.-S. Suh,and G J. Mathews, "Binary neutron star mergers as a probe of quark-hadron crossover equations of state," Phys. Rev. D 106, 103027 (2022). https://doi.org/10.1103/PhysRevD.106.103027

- M. Famiano, G. J. Mathews, B. A. Balantekin, T. Kajino, M. Kusakabe, K. Mori, "Evolution of Urca Pairs in the Crusts of Highly Magnetized Neutron Stars," Astro- phys. J, 940, 108 (2022); doi:10.3847/1538-4357/ac9bf3

- M. Correa, M. R. Gangopadhyay, N. Jaman, G. J. Mathews, "Primordial Black- Hole Dark Matter via Warm Natural Inflation," Phys. Lett B, 835, 137510 (2022).

- H. Ko, D. Jang, M.-K. Cheoun, M. Kusakabe, H. Sasaki, X. Yao, T. Kajino, T. Hayakawa, M. Ono, T. Kawano, G. J. Mathews, "Comprehensive Analyses of the Neutrino-Process in the Core-collapsing Supernova," Astrophys. J., 937, 116 (2022).

Lee Hyung Won

Position: Professor
Period covered: Jan. 1st ~ Dec. 31st, 2022

I Scientific Work

Parameter Estimation Pipeline development for LIGO/KAGRA collaborations

Machine Leaning Application for cosmology

More accurate gravitational waveform development

Developing an efficient parameter estimation software

Application of Deep Learning Techniques

II Conferences and educational activities
II a Conferences and Other External Scientific Work

II b Work With Students

II c Diploma thesis supervision

Study on the development for effective gravitational wave parameter estimation with PSO (Particle Swarms Optimization), Jeongcho Kim (Aug. 2022)

II d Other Teaching Duties

II e. Work With Postdocs

III. Service activities*[activities carried out in collaboration with ICRANet(e.g. teaching activities, conferences etc...) and outside ICRANet (teaching activities in your university etc…]*

Lectures on GameEngine, General Physics, Mobile Application Development in Inje University

III a. Within ICRANet

III b. Outside ICRANet

Lectures for Inje University

Various lectures for gravitational wave data analysis

IV. Other

2022List of Publication

1. M. Favata, C. Kim, K.G. Arun, J. Kim and H.W. Lee, "Constraining the orbital eccentricity of inspiralling compact binary systems with Advanced LIGO", Phys. Rev. **D105**, 023003(2022).
2. J. Kim, H.W. Lee and K.Y. Kim, "Finding the best interacting dark energy model with observed data", J. Kor. Phys. Soc. **81**, 191(2022).
3. 16 LVK Collaboration papers
4. Da-Eun Song, Dong-Been Jeon, Tae-Sung Ha, Hyung-Won Lee, Kyoung-Yee Kim,"Comparison of Korean Facial Expression ClassificationPerformance between Deep Learning Based Image Filters", J. Next. Con. Tech. Ass. 6, 767(2022). In Korean
5. Dong-Been Jeon, Da-eun Song, Tae-Sung Ha, Hyung-Won Lee, Kyoung-Yee Kim,"The Classification of Korean, Chinese and JapaneseEthnicity Using Deep Learning and Face Landmark", J. Next. Con. Tech. Ass. 6, 2256(2022). In Korean

Name Surname Filippo Frontera

Position: Adjunct Professor of ICRANET, Distinguished Scholarof the University of Ferrara, AssociatedSenior Scientist of INAF-OAS Bologna

Period covered: January - December 2022

I Scientific Work

Experimental and observational X-/gamma-ray astronomy, in particular:

a. Prosecution of the development of a focusing Laue lens of gamma-rays for space astrophysics;

b. Contribution to theproposal for the mission concept, THESEUS, for a new ESA M7 phase A study. THESEUS is devoted to high z GRBs, multi-messenger astronomy and monitoring of the X-ray sky for the search of new transient phenomena.

c. Study of a pathfinder of the space mission concept ASTENA (Advanced Surveyor of Transient Events and Nuclear Astrophysics) based on aNarrow Field Telescope with a50-700 keV pass band, unprecedented sensitivity and <1 arcmin angular resolution, to be proposed as small mission devoted to face from long time unsolved questions, like the origin of positron annihilation line form the Galactic Center region and the Physics of the Supernova Explosions.

d. Contribution to the scientific exploitation of the Chinese satellite mission Insight-HXMT, in particular on the search of the high energy counterparts of Fast Radio Bursts and unprecedented studies of GRB time variability.

II Conferences and educational activities

II a. Conferences and Other External Scientific Work:

1. *Online ASI workshop on Themes and goals for future space science programs , held on April 20-22, 2022, with presentation of the ASTENA mission concept.*

2. *5th national workshop on GRBs,held in Triesteon September12-16, 2022, with invited talk on GRB afterglow discovery with BeppoSAX*;
3. *PRISMA days 2022, workshop on Meteor discoveries with the PRISMA telescope network, Turin,November25-26, 2021.*

II b. Work With Students

yes, with

a) *1 PhDstudentin Physics of University of Ferrara: Lisa Ferro*

II c. Other Teaching Duties

Course for the Master's Degree in Physics, University of Ferrara, on "Measures and Observations of Celestial X- and gamma-rays".

II d. Work With Postdocs

Yes, with 1PostDoc: Miguel Moita, at the Physics and Earth Sciences Department, University of Ferrara

III. Service activities

III a. Member of the IRAP-PhD Faculty

IV. Other

none

2021 List of Publications

1. Rossi, A.; Frederiks, D. D.; Kann, D. A.; De Pasquale, M.; Pian, E.; D'Avanzo, P.; Izzo, L.; Lamb, G.; Malesani, D. B.; Melandri,A.; NicuesaGuelbenzu, A. ; Schulze, S.; Strausbaugh, R.; Amati, L.;Campana, S.; Cucchiara, A.; Ghirlanda, G.; Della Valle, M.; Klose, S.; Salvaterra, R.; ... **Frontera, F.**, ..., "A blast from the infant Universe: the very high-z GRB 210905A",Astronomy & Astrophysics, Volume 665, id.A125, 18 pp. (2022).

2. Song, Xin-Ying; Xiong, Shao-Lin; Zhang, Shuang-Nan; Li, Cheng-Kui;Li, Xiao-Bo; Huang, Yue; Guidorzi, Cristiano; **Frontera, Filippo**; Liu,Cong-Zhan; Li, Xu-Fang; Li, Gang; Liao, Jin-Yuan; Cai, Ce; Luo, Qi; Xiao, Shuo; Yi, Qi-Bin; Zheng, Yao-Guang; Zhou, Deng-Ke ; Liu, Jia-Cong; Xue, Wang-Chen; ..., "The First Insight-HXMT Gamma-Ray Burst Catalog: The First FourYears",The Astrophysical Journal Supplement Series, Volume 259, Issue 2, id.46,16 pp. (2022).

3. Kong, Ling-Da ; Zhang, Shu ; Ji, Long ; Doroshenko, Victor ; Santangelo,Andrea ; Orlandini, Mauro ; **Frontera, Filippo** ; Li, Jian ; Chen, Yu-Peng ;Wang, Peng-Ju ; Chang,

Zhi ; Qu, Jin-Lu ; Zhang, Shuang-Nan,Phase dependent evolution within large luminosity range of 1A 0535+262observed by Insight-HXMT during 2020 giant outburst,The Astrophysical Journal, Volume 932, Issue 2, id.106, 12 pp.; eprintarXiv:2204.11222 (April 2022).

4. Song,X.-Y.;Xiong,S.-L.;Zhang,S.-N.;Li,C.-K.;Li,X.-B.;Huang, Y. ; Guidorzi, C. ; Frontera, F. ; Liu, C. -Z. ; Li, X. -F. ; Li, G. ; Liao, J. -Y. ; Cai, C. ; Luo, Q. ; Xiao, S. ; Yi, Q. -B. ; Zheng, Y. -G. ; Zhou, D. -K. ; Liu, J. -C. ; Xue, W. -C. ; ..., "VizieR Online Data Catalog: Insight-HXMT GRB catalog, 2017-2021 obs. (Song+, 2022)",VizieR On-line Data Catalog: J/ApJS/259/46. Originally published in: 2022ApJS..259...46S.

5. Moita, Miguel; Caroli, Ezio; **Frontera, Filippo**; Curado da Silva, Rui M.; Maia, Jorge M.; Stephen, John; Ferro, Lisa; Virgilli, Enrico, "Polarimetric prospects of a new hard X- soft gamma-ray space mission fornext decades",44th COSPAR Scientific Assembly. Held 16-24 July, 2022. Online athttps://www.cosparathens2022.org/. Abstract E1.12-0032-22.

6. Guidorzi, C. ; Martone, R. ; Marongiu, M. ; Frontera, F. ; Rosati, P. ; Virgilli, E. ; Amati, L.; Orlandini, M. ; Stephen, J. ; Giuri, C. ; Zhang, S. -N. ; Xiong, S.,"Investigating gamma-ray bursts by joining Insight-HXMT and other gamma-ray spacecraft", The Fifteenth Marcel Grossmann Meeting on General Relativity. Edited by E. S. Battistelli, R.T. Jantzen, and R. Ruffini. Published by World Scientific Publishing Co. Pte. Ltd., 2022. ISBN #9789811258251, pp. 1699-1704 (2022).

7. Amati, Lorenzo ; Labanti, Claudio ; Mereghetti, Sandro ; Frontera, Filippo ; Campana, Riccardo ; Auricchio, Natalia ; Baldazzi, Giuseppe ; Bellutti, Pierluigi ; Bertuccio, Giuseppe ; Branchesi, Marica ; Butler, Reginald C. ; Caballero-Garcia, Maria D. search by orcid ; Camisasca, Anna E. ; Castro- Tirado, Alberto J. ; Cavazzini, Leo ; Ciolfi, Riccardo ; De Rosa, Adriano ; Evangelisti, Federico ; Farinelli, Ruben ; Ferro, Lisa ; ..., "The X-/Gamma-ray Imaging Spectrometer (XGIS) for THESEUS and other mission opportunities",Proceedings of the SPIE, Volume 12181, id. 1218126 13 pp. (2022).

8. Virgilli, Enrico ; Frontera, Filippo ; Ferro, Lisa ; Moita, Miguel Fernandes ; Cavazzini, Leo ; Rosati, Piero ; Guidorzi, Cristiano ; Orlandini, Mauro ; Labanti, Claudio ; Caroli, Ezio ; Auricchio, Natalia ; Stephen, John B. ; del Sordo, Stefano ; Amati, Lorenzo, "ASTENA: an innovative mission concept for broadband high-energy astro- physics", Proceedings of the SPIE, Volume 12181, id. 121812H 15 pp. (2022).

9. Ferro, Lisa ; Virgilli, Enrico ; Moita, Miguel ; Frontera, Filippo ; Rosati, Piero ; Guidorzi, Cristiano ; Ferrari, Claudio ; Lolli, Riccardo ; Caroli, Ezio ; Auricchio, Natalia ; Stephen, John B. ; Del Sordo, Stefano ; Gargano, Carmelo ; Squerzanti, Stefano ; Pucci, Mauro ; Limousin, Olivier ; Meuris, Aline ; Laurent, Philippe ; Allaire, Hugo, "The TRILL project: increasing the technologicalreadiness of Lauelenses", Proceedings of the SPIE, Volume 12181, id. 121812K 13 pp. (2022).

10. Ferro, L ; Moita, M. ; Rosati, P. ; Lolli, R. ; Guidorzi, C. ; Frontera, F. ; Virgilli, E. ; Caroli, E. ; Auricchio, N. ; Stephen, J. B. ; Labanti, C. ; Fuschino, F. ; Campana, R. ; Ferrari, C. ; Squerzanti, S. ; Pucci, M. ; del Sordo, S. ; Gargano, C., "Lauelenses: Focusingoptics for

hard X/soft Gamma-ray Astronomy", Proceedings of Sixteenth Marcel Grossmann Meeting, eprint arXiv:2211.16880, November 2022.

11. Virgilli, E. ; Frontera, F. ; Rosati, P. ; Guidorzi, C. ; Ferro, L. ; Moita, M. ; Orlandini, M. ; Fuschino, F. ; Campana, R. ; Labanti, C. ; Marchesini, E. ; Caroli, E. ; Auricchio, N. ; Stephen, J. B. ; Ferrari, C. ; Squerzanti, S. ; Del Sordo, S. ; Gargano, C. ; Pucci, M., "ASTENA: a mission concept for a deep study of the transient gamma-ray sky and for nuclearastrophysics",Proceedings of Sixteenth Marcel Grossmann Meeting, eprint arXiv:2211.16916, November 2022.

Mohammad Taghi Mirtorabi

- Birth: 27 March 1966
- Address:

Department of Physics,
Azzahra University,
Vanak,
Tehran, Iran.

Educations:

- Bachelor of Science: Physics, Shiraz University, Shiraz, Iran, 1990.
- Master of Science: Physics and Astronomy, Shiraz University, Shiraz, Iran, 1994.
- Ph.D: Physics and Astronomy, Institute for Advance Studies in Basic Sciences, Zanjan, Iran, 2002.

Research Interests:

Solar physics, Late stage of stellar evolution, AGB stars, Pulsating red giant and supergiant stars, Mass loss in evolved stars, Stellar dynamics.

Professional Activities:

- Associated Professor of Physics and Astronomy, Azzahra University, 2013-present.
- Assistant Professor of Physics and Astronomy, Azzahra University, 2002-2013.
- Member of editorial board of Nojum Magazine (a monthly magazine about popular astronomy), 1997-2015.

- Chairman of the jury of the Iranian Student Physics Prize, "Rozbeh", awarded annually by Physics Society of Iran, 2002 and 2003.
- Head of the Iranian team participating in the International Astronomy Olympiad (IAO), 2003 - 2007.
- Head of the Iranian team participating in the International Olympiad of Astronomy and Astrophysics, 2003 - 2010,
- Chairman of SOC of the Second Workshop for Amateur Astronomers in "Observation and Analysis of Variable Stars", 2004, Tehran, Iran.
- Chairman of SOC of the Conference of Physics Students, 2004, Tehran, Iran.
- Head of the Iranian team participating in the International Olympiad of Astronomy and Astrophysics, 2019 - Ongoing.

Computational skills

- **Languages:** Fortran, C++, Python.
- **Platforms:** Windows, Linux.

Publications:

1. Zeinali F., Edalati M. T., Mirtorabi M. T. *Photoelectric Observations of the Eclipsing Variable ER Vulpeculae* 1995, IBVS, 4190.
2. Mirtorabi M. T., Guinan E. F., Wasatonic R. P., Ribas I., Engle S. G. *Starspots and Plages on the Active G8 IV-III Star λ Andromedae,* 2001, AAS, 198.9403.
3. Wasatonic R. P., Mirtorabi M. T., Guinan E. F., Messina S. *Seeing Spots: Wing Near-IR TiO and V-Band Photometry of Chromospherically Active Stars,* 2002, AAS, 199.3305.
4. Mirtorabi M. T., Guinan E. F., Wasatonic R. P., *Wing Near-IR, TiO and V-Band Photometry of Choromospherically Active Star λ Andromedae* , 2003. AJ, 125, 3265.

5. Mirtorabi M. T., Riazi N., *Photometric Observations and Light Curve Studies of the Semi-detached Eclipsing Binary R CMa*, 2006, Ap&SS, 306, 159.

6. Mirtorabi M. T., Javadi Khasraghi A., Abdolrahimi S., *Effects of core magnetic fields in evolution of binary neutron stars,* 2006, IAUJD, 2, 1.

7. Mirtorabi M. T., Javadi Khasraghi A., Abdolrahimi S., *Coupled Spin, Mass, Magnetic field, and Orbital Evolution of Accreting Neutron stars*, 2006, IAUJD, 2, 42.

8. Javadi A., van Loon J. T., Mirtorabi M. T., *JHK variable stars in M33* , 2010, SIMBAD, VizieR On-line Data Catalog: J/MNRAS/411/263.

9. Javadi A., van Loon J. T., Mirtorabi M. T., *The UK Infrared Telescope M33 monitoring project - I. Variable red giant stars in the central square kiloparsec* , 2011, MNRAS, 411, 263, Astro-ph 1009.1822

10. Javadi A., van Loon J. T., Mirtorabi M. T., *The UK Infrared Telescope M33 monitoring project - II. The star formation history in the central square kiloparsec* , 2011, MNRAS, 414, 3394, Astro-ph 1103.0755.

11. Javadi A., van Loon J. T., Mirtorabi M. T., *Infrared Survey of Pulsating Giant Stars in the Spiral Galaxy M33: Dust Production, Star Formation History, and Galactic Structure,*, 2011, ASP Conf. Series, Eds. Franz Kerschbaum, Thomas Lebzelter and Bob Wing Astroph-1101.5271.

12. Nikzat F., Javadi A., Mirtorabi M. T., van Loon J. Th., Khosroshahi H., *Photometry and Stellar Structure Analysis of the Central Regions of the M33 galaxy*, 2013, IAUS, 292, 160.

13. Javadi A., van Loon J. Th., Khosroshahi H., Mirtorabi M. T. *The UK Infrared Telescope M33 monitoring project - III. Feedback from dusty stellar winds in the central square kiloparsec* 2013, MNRAS, 432, 2824, Astro-ph 1304.3782.

14. Mirtorabi T., *A simple procedure to extend the Gauss method of determining orbital parameters from three to N points,* 2014, Ap&SS, 349, 137, astro-ph 1310.3790

15. Habibi, A., Mirtorabi, M. T., Roshan, M., *Local stability criterion for self-gravitating disks in modified gravity* , 2014, Iranian Journal of Astronomy and Astrophysics. Vol 1, No. 2, 95, Astro-ph 1405.6388.

16. Javadi, A., Saberi, M., van Loon J. Th., Khosroshahi H., Golabatooni N., Mirtorabi M. T., *The UK Infrared Telescope M33 monitoring project. IV. Variable red giant stars across the galactic disc* 2015, MNRAS, 447, 3973, Astro-ph 1412.3840.

17. Morabbi, S., Mirtorabi, M. T., *Double Stars as Tracers of Tiny Structures in the Interstellar Medium,* Publications of The Korean Astronomical Society, 2015, 30, 89

18. Azizi, F. Mirtorabi, M. T., *An updated wing TiO sensitive index for classification of M-type stars*, 2015, Ap&SS, 357, 96, Astro-ph 1505.04332

19. Bidaran, B., Mirtorabi, M. T., Azizi, F., *A new titanium oxide index in the visual band*, 2016, MNRAS, 457, 2043.

20. Gheidi Shahran, A., Mirtorabi, M. T., *Proper integration time of polarization signals of inter network regions using Sunrise/IMaX data*, 2016, Iranian Journal of Astronomy and Astrophysics. Vol 2, No. 2, 109.

21. Azizi, F., Mirtorabi, M. T., *A survey of TiO567 nm absorption in solar-type stars*, 2018, MNRAS, Vol 475, 2253.

22. Kianfar, S., Jafarzadeh, S., Mirtorabi, M. T., *Linear Polarization Features in the Quiet-Sun Photosphere: Structure and Dynamics*, 2018, Solar Phys, Vol 293, 123. T.L. Riethmlle

23. Papar, M., Kollath, Z., Shobbrook, R. R., Matthews, J. M., Antoci, V., Benko, J. M., Park, N. K., Mirtorabi, M. T., Luedeke, K., Kusakin, A., Bognar, Zs, Sodor, A., Gracia-Hernandez, A., Pena, J. H., Kuschnig, R., Moffat, A. F. J., Rowe, J., Rucinski, S. M., Sasselov, D., Weiss, W. W., *The Delta Scuti star 38 Eri from the ground and from space* , 2018, Vol 477, Issue 4, 43624379.

24. Najafi, Sh., Mirtorabi,M. T., Ansari, Z., Mota, D.F., *Red giant evolution in modified gravity,* 2019, JCAP02(2019)011.

25. Gholami, M., Mirtorabi, M. T., *The Isaac Newton Telescope Monitoring Project: Stellar Population in the IC 10 Dwarf Irregular Galaxy*, 2019, Iranian Journal of Astronomy and Astrophysics, Vol. 6, No. 1, 53.

26. Rastegarnia, F., Mirtorabi, M. T., Moradi, R., Vafaei Sadr A., Wang, Y., *Deep Learning in Searching the Spectroscopic Redshift of Quasars*, 2022, MNRAS, Vol. 511, 4490.

27. Monfared, S., Abdolvand, N., Mirtorabi, M. T., Rajaee Harandi, S., *Machine Learning Method for Predicting the Merger and Morphology of Galaxies through Near-Infrared Spectroscopy*, 2022, Iranian Journal of Astronomy and Astrophysics, Vol. 9, No. 1, 19, Spring 2022.

28. Parto, T., Dehghani, Sh., Javadi, A., Saremi, E., Van Loon, J., Khosroshahi, H., McDonald, I., Mirtorabi, M. T., Navabi, M., Saberi, M., *The Isaac Newton Telescope Monitoring Survey of Local Group Dwarf Galaxies. V. The Star Formation History of Sagittarius Dwarf Irregular Galaxy Derived from Long-period Variable Stars*, 2023, ApJ, Vol, 942, 13.

Surname Name **Photo** 

Quevedo Hernando

Position: Full Professor - National Autonomous University of Mexico -
Period covered: 2022

I Scientific Work

Topics:

- Exterior and interior solutions of Einstein's equations and applications in relativistic astrophysics.
- The physics of naked singularities.
- Geometrothermodynamics of black holes.
- Applications of geometrothermodynamics in cosmology.
- Topological quantization of classical field theories.

II Conferences and educational activities

II a Conferences and Other External Scientific Work

II b Work With Students

II c Diploma thesis supervision

- Sasha Zaldivar (PhD)
  Topic:Geometric description of ideal quantum gases and Bose-Einstein condensation
- Elly Bayona (PhD)
  Topic:Axially symmetric gravitational collapse
- Pedro Sánchez (PhD)
  Topic:Geometrothermodynamics in relativistic astrophysics
- Servando Vargas (PhD)
  Topic: Singularity theorems in general relativity
- Luis Miguel Sánchez (PhD)
  Topic: Thermodynamics of Friedman-Lemaitre-Robertson-Walker universes
- Fernando Aragón (PhD)
  Topic: Symplectic structure of geometrothermodynamics

II d Other Teaching Duties

II e. Work With Postdocs

- Francisco L. Escamilla, UNAM
- SakenToktarbay, Kazakh National University

III. Service activities *[activities carried out in collaboration with ICRANet(e.g. teaching activities, conferences etc...) and outside ICRANet (teaching activities in your university etc…]*

III a. Within ICRANet

III b. Outside ICRANet

Course: Relativistic Cosmology - UNAM

IV. Other

2022 List of Publications

"Accretion disk luminosity for black holes surrounded by dark matter with anisotropic pressure" (Kuantay Boshkayev, Roberto Giambò, Talgar Konysbayev, Ergali Kurmanov, Orlando Luongo, Daniele Malafarina, Hernando Quevedo), *TheAstrophysical Journal* **925**:210 (2022).

"Thermodynamic length, geometric efficiency and Legendre invariance" (Carlo Cafaro, Orlando Luongo, Stefano Mancini, Hernando Quevedo) *Physica A* **590,** 126740 (2022).

"Darmois matching and C3 matching" (Antonio C. Gutiérrez-Piñeres, Hernando Quevedo) *Classical and Quantum Gravity***39**, 035015 (2022).

"Geometrothermodynamics of van der Waals systems" (Hernando Quevedo, María N. Quevedo and Alberto Sánchez.) *Journal of Geometry and Physics***176**, 104495 (2022).

"Gravitational field of slightly deformed naked singularities" (S.Toktarbay, H. Quevedo, M. Abishev, and A. Muratkhan) *The European Physical Journal C* ***82.*****4,** 1 (2022).

"On light surfaces in black hole thermodynamics" (Daniela Pugliese and Hernando Quevedo) *The European Physical Journal C* ***82.5***, 1 (2022).

"Symplectic structure of equilibrium thermodynamics" (Luis Aragón-Muñoz and Hernando Quevedo), *International Journal of Geometric Methods in Modern Physics* ***19,*** 2250178(2022).

"Geometrothermodynamic approach in econophysics (Hernando Quevedo and María N. Quevedo) *International Journal of Geometric Methods in Modern Physics* ***19, 2350057*** (2022).

"Wormholes, Killing Horizons and Naked Singularities: light surfaces in axially symmetric spacetimes" (Daniela Pugliese and Hernando Quevedo) *The European Physical Journal C***82**, 1 (2022).

"Geometrothermodynamic description of real gases using the law of corresponding states" (Hernando Quevedo, María N. Quevedo and Alberto Sánchez.) *Journal of Geometry and Physics****176***, 104727 (2022).

SOROUSH SHAKERI

CURRENT POSITION:

Assistant Professor at Isfahan University of Technology (IUT)
The Head of ICRANet-Isfahan
Adjunct Professor of ICRANet, Italy

Date of Birth : 14/07/1988
Place of Birth : Ahvaz,Iran
Address : Department of Physics, Isfahan University of Technology, Isfahan 84156-83111, Iran
Telephone : +98 09387106317
E-mail : s.shakeri@iut.ac.ir
Homepage. : https://shakeri.iut.ac.ir

SCIENTIFIC AREA

- Astroparticle Physics
- High Energy Astrophysical Phenomena
- Gamma Ray Bursts (GRBs)
- Dark Matter - Direct and Indirect Detections
- Strong Field QED Phenomena
- Early Universe Cosmology

List of Publication - 2022

Davood Rafiei Karkevandi, Soroush Shakeri, Violetta Sagun, Oleksii Ivanytskyi, **Bosonic Dark Matter in Neutron Stars and its Effect on Gravitational Wave Signal,**
Phys. Rev. D 105, 023001 (2022), [arXiv:2109.03801v2]

Probing Virtual Axion-Like Particles by Precision Phase Measurements, Moslem Zarei, Soroush Shakeri, Mohammad Sharifian, Mehdi Abdi, David J. E. Marsh, Sabino Matarrese JCAP06(2022)012 [arXiv:1910.09973]

List of papers under review -2022 -2023

Bosonic Dark Matter in light of the NICER Precise Radius Measurements,
Soroush Shakeri, Davood Rafiei Karkevandi, Submitted to PRD - 2022
Probing Axions via Light Circular Polarization and Event Horizon Telescope,
Soroush Shakeri and Fazlollah Hajkarim, Submitted to JCAP - 2022
Time-averaging Polarimetric and Spectral Properties of GRBs, Liang Li, Soroush Shakeri
[ArXiv:2301.00576] Submitted to MNRAS - 2023

Work in Progress 2023

- Detectability of GRB Optical Prompt and Afterglow with Iranian National Observatory (INO340) - ICRANet-Italy & ICRANet-Isfahan, Soroush Shakeri et al. 2023
- Relic Density of Sterile Neutrinos, Soroush Shakeri et al, 2023
- Time-varying Polarimetric and Spectral Properties of GRBs, Liang Li, Soroush Shakeri, et al. 2023
- Probing Axion Dark Matter via CMB Circular Polarization, Soroush Shakeri, Danial Lohrabi, 2023
- Probing Axion via Circular Polarization in Pulsars, Soroush Shakeri, Nasim Akbari 2023
- Search for Sterile Neutrinos at MiniBooNE Experiment, Soroush Shakeri, She-Sheng Xue, Fazlollah Hajkarim, 2023

Service Activities Within ICRANet

- Organizing ICRANet-Isfahan Astronomy virtual Meeting 3 - 5 November 2021
- Organizing a parallel session in 16th Marcel Grossmann virtual Meeting (MG16) 5-10 July 2021
- Organizing a virtual meeting on the occasion of World Astronomy Week, May 11-12, 2021
- Editor of Astronomical and Astrophysical Transactions (AApTr), 2022, Vol. 33, Issue 3, to cover ICRANet-Isfahan Meeting 2023

Oral Talks

- **Soroush Shakeri**, 17th Italian-Korean Symposium for Relativistic Astrophysics, 5th Agust 2021, **The Role of Sterile Neutrinos in Cosmology and recent anomalies in Dark Matter Searches.**
- **Soroush Shakeri,**Sixteenth Marcel Grossmann Meeting (MG16),7th July 2021, **Hunt for the Sterile Neutrino Dark Matter**.
- **Soroush Shakeri,** IRCHEP 1400, Iranian Conference on High Energy Physics Deciphering the Universe Ciphers, School of Physics, **The Role of Sterile Neutrinos in Recent Observed Anomalies**, IPM 8-10 November, 2021
- **Soroush Shakeri, Direct and Indirect Probes for Dark Matter: from Recoil Electrons to Gravitational Waves,** Weekly Meeting, IPM, 17 November,2021•

Master thesis supervision

- **Danial Lohrabi**, **Investigation of the Impact of Axion Dark Matter on Polarization Properties of CMB**, 2022
- **Nasim Akbari, The Effect of Axion Field on the Polarization of Pulsar Electrodynamic Radiation** 2022

Diploma thesis supervision

- **Sina Etebar**, **The Role of Sterile Neutrinos to Explain Various Anomalies Observed in Neutrino Oscillation Experiments**, 2021
- **Hanieh Karimi, Dark Matter Effects in Neutron Star Properties,** 2021

Teaching Activities

- Analytic Mechanics I, II. Astrophysics, Particle Physics, History of Science, Isfahan University of Technology

•RESEARCH EXPERIENCE

Reviewer of Iranian Journal of Research on Many Body Systems.
Reviewer of Articles in Iranian National conference of Gravity and Cosmology 1400.
Reviewer of Proposals in Khwarizmi Youth Award.
Reviewer of Articles in Iranian Conference on Mathematical Physics Conference.

LIST OF PUBLICATIONS WITHIN ICRANET BEFORE 2022

Nonlinear QED Effects in X-ray Emission of Pulsars , S. Shakeri, M. Haghighat and She-Sheng Xue,JCAP 1710 (2017) no.10, 014 , [arXiv:1704.04750]

Polarization of a Probe Laser Beam due to the Nonlinear QED Effects. Soroush Shakeri, Seyed Zafarollah Kalantari, She-Sheng Xue. 2017. 10 pp. Published in Phys.Rev. A95 (2017) no.1, 012108.

"On the universal late X-ray emission of binary-driven hypernovae and its possible collimation" G.B.Pisani, R. Ruffini, Y. Aimuratov, C.L. Bianco, M. Kovacevic, R. Moradi, M. Muccino, A.V. Penacchioni,J.A. Rueda, S. Shakeri Y. Wang. Astrophys.J. 833 (2016) no.2, 159 [arXiv:1610.05619]

``X-ray Flares in Early Gamma-ray Burst Afterglow'' R. Ruffini, Y. Wang, Y. Aimuratov, L. Becerra, C.L.Bianco, M. Karlica, M. Kovacevic, L. Li, J.D. Melon Fuksman, R. Moradi, M. Muccino, A.V. Penacchioni,G.B. Pisani, D. Primorac, J.A. Rueda, S. Shakeri, G.V. Vereshchagin, S.-S. Xue,Astrophys.J. 852 (2018)no.1, 53 [arXiv:1704.03821]

The binary systems associated with short and long gamma-ray bursts and their detectability, Jorge Rueda, Y. Aimuratov, U. Barres de Almeida, L. Becerra, C.L. Bianco, C. Cherubini, S. Filippi, M. Karlica, M. Kovacevic , J.D. Melon Fuksman, R. Moradi, M. Muccino, A.V. Penacchioni, G.B. Pisani, D. Primorac, R. Ruffini, N. Sahakyan , S. Shakeri, Y. Wang. Int.J.Mod.Phys. D26 (2017) no.09, 1730016

The cosmic matrix in the 50th anniversary of relativistic astrophysics ,R. Ruffini, Y. Aimuratov , L. Becerra, C.L. Bianco, M. Karlica, M. Kovacevic , J.D. Melon Fuksman, R. Moradi, M. Muccino , A.V. Penacchioni, G.B. Pisani, D. Primorac , J.A. Rueda, S. Shakeri, G.V. Vereshchagin, Y. Wang, S.S. Xue, Int.J.Mod.Phys. D26 (2017) no.10, 1730019

What can we learn from GRBs? Marco Muccino , Remo Ruffini, Yerlan Aimuratov, Laura M. Becerra, Carlo L. Bianco, Mile Karlica, Milos Kovacevic, Julio D.Melon Fuksman, Rahim Moradi , Ana V. Penacchioni , Giovanni B. Pisani, Daria Primorac , Jorge A. Rueda, Soroush Shakeri, Gregory V. Vereshchagin, She-Sheng Xue, Yu Wang EPJ Web Conf. 168 (2018) 01015

Revisiting the Statistics of X-ray Flares in Gamma-ray Bursts, Y. Wang, Y. Aimuratov , R. Moradi , M. Peresano, R. Ruffini, S. Shakeri, THESEUS Workshop 2017,05-06 Oct 2017. Naples, Italy [arXiv: 1802.01693]

Relativistic Behavior and Equitemporal Surfaces in Ultra-Relativistic Prompt Emission Phase of Gamma-Ray Bursts, Moradi, R.; Ruffini, R.; Bianco, C. L.; Chen, Y.-C.;Karlica, M.; Melon Fuksman, J. D.; Primorac, D.; Rueda, J. A.; Shakeri, S.; Wang, Y.; Xue, S. S.Astronomy Reports, Volume 62, Issue 12, pp.905-910, 2018

Circularly Polarized EM Radiation from GW Binary Sources. Soroush Shakeri, Alireza Allahyari, Published in JCAP11(2018)042, [arXiv:1808.05210]

Schwinger Effect in Anisotropic Inflation, Soroush Shakeri, Mohammad Ali Gorji and Hassan Firouzjahi,[arXiv:1903.05310] Phys. Rev. D 99, 103525 (2019)

Tidal Deformability as a Probe of Dark Matter in Neutron Stars, Davood Rafiei Karkevandi, Soroush Shakeri, Violetta Sagun, Oleksii Ivanytskyi, Contribution to: MG16, [arXiv:2112.14231]

Estimating the Photometric Redshifts of Galaxies and QSOs Using Regression Techniques in Machine Learning, Aidin Momtaz, Mohammad Hossein Salimi, Soroush Shakeri, Contribution to: MG16, [arXiv:2201.04391]

Shedding New Light on Sterile Neutrinos from XENON1T Experiment, Soroush Shakeri, Fazlollah Hajkarim, She-Sheng Xue, JHEP12(2020)194, [arXiv:2008.05029]

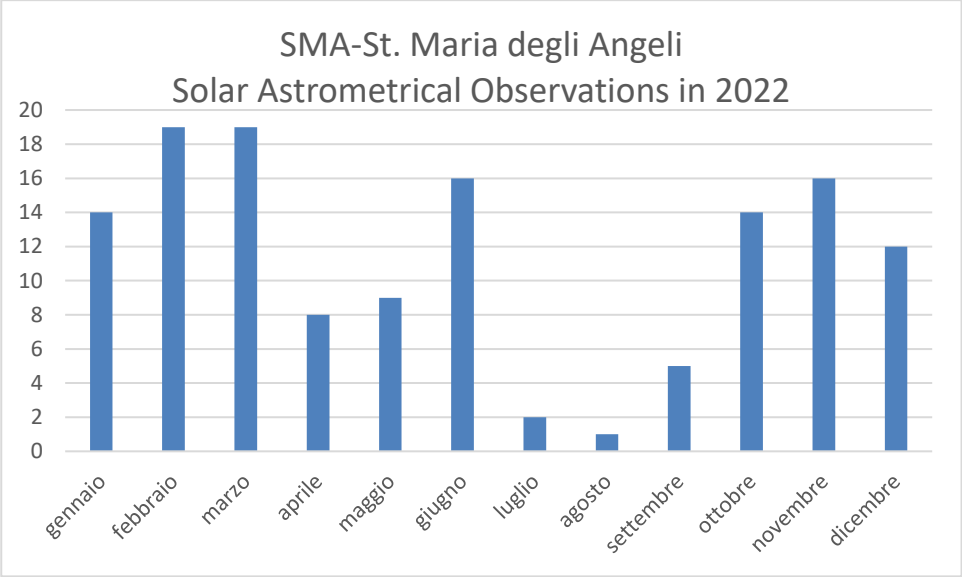
Sigismondi Costantino Photo

Position: Professor
Period covered: 1 Jan 2022-1 Jan 2023

I Scientific Work

Positional Astronomy: the historical meridian lines of st. Maria degli Angeli (Clementine Gnomon, 1702) in Rome and of St. Peter's square in Vatican (1586-1817) have been used to measure 1. The obliquity of Earth's orbit 2. The ΔUT1=UT1-UCT as result of Earth's spin gradual delay 3. The Earth's rotation rate 4. The atmospherical effects on refraction 5. The length of the seasons 6. The relativistic effects on Earth's orbit and on stellar light. 7. The calibration of the instruments in their various parts.

Astronomical Observations: Solar Astrometry
An observational champaign IGEA/ZIA devoted to the **calibration** started for the Clementine Gnomon in 2018, and it has been continued in 2022 with 135 meridian observations.



Another **calibration** campaign started in 2020 for the **Vatican Obelisk meridian line**, and in 2022 continued with 20 observations, which verified the ephemerides issued in 2021 to the nearest second. Meridian transits of Jupiter, Moon and stars have been also observed at the St. Peter's Obelisk.

Astronomical Observations: Stellar Variability
The study of supergiant stars Betelgeuse and Antares continued in 2022 with 144 measures of their photometry. Also the recurrent Nova U Sco, the Nova Cas 2021 and Delta Scorpii have been observed.

To this whole astronomical section belong 28 publications in 2022.

Climate Change and the Astronomical Forcing: the role of the solar variability is investigated in relationship with climate change, in collaboration with ISPRA, Istituto Superiore per la Protezione e la Ricerca Ambientale. To this section belong 6 publications in 2022.

II Conferences and educational activities

II a Conferences and Other External Scientific Work

ISPRA Giornate di Geologia e Storia 2022
https://www.isprambiente.gov.it/it/archivio/eventi/2021/12/prima-giornata-di-geologia-e-storia-ghost-cities-le-citta-fantasma-tra-storia-e-geologia 16 dicembre 2021
https://www.isprambiente.gov.it/it/events/seconda-giornata-di-geologia-e-storia-geontropologia-e-geomitologia-leggende-tradizioni-popolari-e-mito 24 febbraio 2022
https://www.isprambiente.gov.it/it/events/terza-giornata-di-geologia-e-storia-le-grandi-aree-urbane-note-di-archeologia-storia-e-geologia 21 aprile 2022
https://www.isprambiente.gov.it/it/events/quarta-giornata-di-geologia-e-storia sulle variazioni climatiche 9 giugno 2022
https://www.isprambiente.gov.it/it/events/giornate-di-geologia-e-storia sulla difesa dei litorali 15 dicembre 2022

II b Work With Students

PCTO Liceo Scientifico Galileo Galilei Pescara e ITIS G. Ferraris, Roma: School years 2021/22 and 2022/23

PCTO ASYAGO at the Astrophysical Observatory of Padua (Asiago) School year 2021/22.

II c Diploma thesis supervision

UPRA Pontifical University Regina Apostolorum Academical Year 2021/22

II d Other Teaching Duties

Physics I and II annual Course ITIS G. Ferraris, Roma School years 2021/22 and 2022/23

II e. Work With Postdocs

III. Service activities *[activities carried out in collaboration with ICRANet (e.g. teaching activities, conferences etc...) and outside ICRANet (teaching activities in your university etc…]*

III a. Within ICRANet

PCTO Alternanza Scuola Lavoro

Convegno 17 May 2022 Pescara con osservazioni dell'eclissi di Luna

Event: Eclissi solare parziale e misura del diametro solare 25 October 2022

III b. Outside ICRANet

Physics I and II annual Course ITIS G. Ferraris, Roma

PCTO ASYAGO 13-21 July 2022

Champoluc, Aosta: Alpine Glaciers' monitoring 19-25 June 2022

IV. Other

2022 List of Publication

The number of publications appeared in refereed Journals in 2022 is 40, 32 of them 80% are in Astronomy and 8, 20%, in Geology-Climate Change.

https://www.isprambiente.gov.it/it/pubblicazioni/periodici-tecnici/memorie-descrittive-della-carta-geologica-ditalia/giornate-di-geologia-e-storia-2

Memorie Descrittive della Carta Geologica d'Italia vol. 109 (2022): 6 publications

Sigismondi C. - Orientamento astronomico delle aree sacre di Sant'Omobono e di Largo Argentina a Roma p. 253

Sigismondi C. - Castrum Inui, sollevamento e paleobattenti di marea p. 257

Sigismondi C., Giannini F. - Il Sole e il forzante astrofisico del clima p. 261

Sigismondi C., Pietroni S. - Santa Lucia, il giorno più corto che ci sia? P. 269

Sigismondi C. - Sant'Emidio padrone dei terremoti: uno sguardo sull'Abruzzo p. 273

Sigismondi C., Soldovieri M. G. - Le Terme di Diocleziano a Roma, e i terremoti appenninici: stabilità della struttura principale p. 277

Mem. Descr. Carta Geol. d'It. 110 (2023) in press,

Sigismondi C., Oceanografia litorale, esperimenti didattici. p. 131-136

Sigismondi, C., Sizigie, maree, correnti e terremoti, p. 137-142

https://www.isprambiente.gov.it/files2022/pubblicazioni/periodici-tecnici/volume-109-indice.pdf

https://www.isprambiente.gov.it/files2023/pubblicazioni/periodici-tecnici/volume-110-indice.pdf

Gerbertus vol. 18 (2022)

1 2022Gerb...18...87S2022/12, L'occultazione di Marte in opposizione, Sigismondi, C.

2 2022Gerb...18...83B2022/12, Il raggio della Terra da misure sullo stesso meridiano, Battistol, Federico; Piccoli, Elena, Sigismondi, C.

3 2022**ATel15800**....1V2022/12, RW Cephei great dimming, Vollmann, Wolfgang; Sigismondi, C.

4 2022Gerb...18...71S2022/11, Minimo comune multiplo e teoria astronomica del clima, Sigismondi, C.

5 2022Gerb...18...67S2022/11, Meteotsunami a Ostia il 22 novembre 2022, Sigismondi, Costantino

6 2022Gerb...18...63S2022/11, Sole nella Bilancia, Scorpione e Sagittario osservato nel 2022 alla meridiana di s. Maria degli Angeli, Sigismondi, Costantino

7 2022Gerb...18...57S2022/11, Jay Myron Pasachoff (1943-2022): una vita per il Sole, Sigismondi, C.

8 2022Gerb...18...55S2022/11, Levate del Sole a Pescara tra maggio e novembre 2022 Sigismondi, Costantino; Pompa, Tiziana

9 2022Gerb...18...41S2022/11, Eclissi di Luna dell'8 novembre 2022 agli antipodi, Sigismondi, Costantino

10 2022Gerb...18...27S2022/10, Eclissi parziale di Sole del 25 ottobre 2022 e frequenze ,Sigismondi C.

11 2022Gerb...18...23S2022/09, Fenomeni equinoziali a san Pietro in Vaticano, Sigismondi, Costantino

12 2022Gerb...18....1S2022/06, Introduzione alla fisica del mare, Sigismondi, Costantino

Journal of Occultation Astronomy

13 2022JOA....12c..14S2022/06

Differential Measurements of ΔUT1 at the Meridian Line of Santa Maria degli Angeli in Rome and the Rediscovery of the Boscovichian Sinus, Sigismondi, C.; Pietroni, S.

Gerbertus 16 (2022)

14 2022Gerb...16...23S2022/04, Le piene del Tevere nel XVI secolo, e la memoria su pietra a Roma al porto di Ripetta e alla Minerva, Sigismondi, Costantino

15 2022Gerb...16...29S2022/03, Pinhole giant meridian lines: a review on ancient data retrieval and modern observations (IGEA-ZIA campaign), Sigismondi, Costantino

16 2022Gerb...16...19S2022/03, Dante e le osservazioni astronomiche, Sigismondi, Costantino

17 2022Gerb...16...15S2022/03, Proprietà ottiche dei pollini di Cipresso in aria, Sigismondi, C. and Ricciardi, Lorenzo

18 2022Gerb...16....7S2022/03, Manualetto di osservazioni solari in stile svizzero, Sigismondi, Costantino

19 2022arXiv220211015S2022/02 Solstices and Equinoxes in 1703 at the meridian line of St. Maria degli Angeli in Rome, and the stellar aberration of Sirius, Sigismondi, Costantino; Pietroni, Silvia

20 2022**ATel15240**....1S2022/02, The brighter phase of Betelgeuse since 2017 Sigismondi, Costantino; Vollmann, Wolfgang; Mariuzza, Fabio and 4 more

21 2022Gerb...18…51S2022/12, Tramonti sul Velino l'8 e l'11 novembre 2022, Sigismondi, C.

22 2022Gerb...18..151S2022/12, Solstizio d'Inverno 2022 da altezze e tempi in meridiano, Sigismondi C.

23 2022Gerb...18..165S2022/12, Ricordi astronomici su Benedetto XVI, Sigismondi, Costantino

24 2022Gerb...18..173S2022/12, Effemeridi della Meridiana Clementina per il 2022, Sigismondi, C.

Marcel Grossmann Meeting XVI

25 2022mgm..conf.1817P2022, Angelo Secchi, the tradition of Gnomonics at the Collegio Romano, and the Equation of Time during the centuries, Pietroni, Silvia; Sigismondi, Costantino

26 2022mgm..conf.1811B2022, Meridian Service in Rome at S. Maria degli Angeli with Francesco Bianchini and at Collegio Romano with Angelo Secchi, Baschetti, Beatrice; Sigismondi, Costantino

27 2022mgm..conf.1806G2022, Agro-pastoral astronomical algorithms for seasonal feasts, Giannini, Francesco; Sigismondi, Costantino

28 2022mgm..conf.1798S2022, The Secchi-Rosa law on the solar diameter, Sigismondi, Costantino

29 2022mgm..conf.1790S2022, Dark sky in Rome now and at the time of Angelo Secchi, Sigismondi, Costantino

30 2022mgm..conf.1776B2022, The Sodium D-Lines in Rome from Angelo Secchi to Alessandro Cacciani, Bordoni, Luigi; Sigismondi, Costantino

31 2022mgm..conf.1770B2022, Angelo Secchi and Gnomonics, Bacchini, Sara; Sigismondi, Costantino

32 2022mgm..conf.1335S2022, Historical, philosophical and theological framing of General Relativity for high school students, Sigismondi, C.; Pompa, T.; Impellizzeri, D.

The publications on gathered Gerbertus are gathered at

www.icra.it/gerbertus/

http://www.icra.it/gerbertus/2022/Gerbertus18.pdf
http://www.icra.it/gerbertus/2022/Gerbertus17.pdf
http://www.icra.it/gerbertus/2022/Gerbertus16.pdf

Yousef Sobouti

Position: **Founder, Institute for Advanced Studies in Basic Sciences (IASBS)**
Period covered: **1992**

Position: **Founding President, IASBS**
Period covered: **1992 – 2010**

Position: **Professor of Physics, Shiraz University**
Period covered: **1964 -1997**

Position: **Professor of Physics, IASBS**
Period covered: **1993 – 2020**

Position: **Founder, Biruni Observatory of Shiraz University**
Period covered: **1971**

Position: **Founding Director, Biruni Observatory of Shiraz University**
Period covered: **1971 – 1981**

Position: **Founder and Founding Director, Center for Research in Climate Change and Global Warming, IASBS**
Period covered: **2012 - present**

Position: **Fellow, The World Academy of Sciences (TWAS)**
Period covered: **1987 – present**

Position: **Fellow, Iran Academy of Sciences**
Period covered: **1988 – present**

Position: **Iran Academy of Sciences, Head, Basic Sciences Branch**
Period covered: **2022 – 2024**

I Scientific Work

- **Education:**

  B.Sc., Physics, Tehran University, 1953

  M.A., Physics, University of Toronto, 1960

  Ph.D., Astronomy and Astrophysics, University of Chicago, 1963

- **Positions held**:

  Lecturer, Dept. of Math., University of Newcastle on Tyne, 1963-1964

Associate Professor, Physics, Shiraz University, 1964-1970

Visiting Associate Professor, Astronomy, University of Pennsylvania, 1968-1969

Professor of Physics, Shiraz University, 1971 to 1999

Chairman, Physics Department, Shiraz University, 1972-1974 and 1978-1980

Visiting Senior Researcher, Astronomical Institute, University of Amsterdam, 1975-1976

Visiting Scholar, Astronomy and Astrophysics Center, University of Chicago, 1984-1985

Visiting Professor, Physics Department, Northeastern University, Boston, 1991-1992

Professor of Physics, Institute for Advanced Studies in Basic Sciences (IASBS), Zanjan, Iran 1991- 2020

Academy of Sciences of Iran, Head of Basic Sciences Branch, 2012 –2019, 2022 –

present

Adjunct Professor, International Center for Relativistic Astrophysics Network (ICRANET), Pescara, Italy, 2015

- **Publications (Papers)**

1. Sobouti, Y., "Three arguable concepts: point particle singularity, asymmetric action of EM on quantum wave functions, and the Left out restricted Lorentz gauge from U(1)", Quantum Studies - Mathematics and Foundations (to appear), (2022).
2. Sobouti, Y., "Astronomy in Iran, an update, 2021", IUT International E-Newsletter, Volume 3, Special Issue, November 2021, pp. 9-10, (2021).
3. Sobouti, Y., "Massive Gravity as an Alternative Gravity", Gravitation and Cosmology, Vol. 26, Number 1, pp. 1–6, (2020).
4. Sobouti, Y., "An Oscillator representation of elementary particles", J. Phys. Communication, Journal of Physics Communications, Volume 2, Number 8 (2018)2.
5. Sobouti, Y., Jahani Poshteh, M. B., "A cosmological model with time varying cosmological constant", (2017).
6. Sobouti, Y., "Harmonic Oscillators and Elementary Particles", arXiv:1608.04598v1 [physics.gen-ph], (2016).
7. Sobouti, Y., "Lorentz Covariance `almost' implies electromagnetism and more", Eur. J. Phys. 17 180–2. IOPscience, (2015), arXiv:1507.06393 [physics.class-h].
8. Sobouti, Y., Darvishzadeh, R., Naghavi Azad, A., "Climate of Iran-Projection of Temperature and Precipitation until 2030", Science Cultivation 5 (2), pp. 18-25, (2015).

9. Sobouti, Y. And Naghavi Azad, A., “Projection of the Regional Climate of Iran”, Science Cultivation, Vol. 4 (2), pp. 124-129,(2014).

10. Sobouti, Y., "Minimalist's Electromagnetism - Different Axioms and Different Insight", 1-4, (2013).

11. Sobouti, Y., “Climate and Its Changes in 20th and 21st Centuries”, Science Cultivation, Vol. 1 (2), pp. 5-15, (2011).

12. Moravveji, E., Guinan, E. F., Sobouti, Y., "On the Mass and Evolutionary Status of the Bright Red AGB Supergiant α^1 Herculis” in Why Galaxies Care about AGB Stars II: Shining Examples and Common Inhabitants, Edited by F. Kerschbaum, T. Lebzelter, and R.F. Wing. San Francisco, Proceedings of a conference held at University Campus, Viena, Austria, 16-20 August 2010, Astronomical Society of the Pacific, 2011, 163-164, (2010).

13. Sobouti, Y., “Dark Companion of Baryonic Matter in Spiral Galaxies” in DARK MATTER IN ASTROPHYSICS AND PARTICLE PHYSICS, Edited by Hans Volker Klapdor-Kleingrothaus, Irina V Krivosheina, Proceedings of the 7th International Heidelberg Conference on Dark 2009. Held 18 - 24 January 2009 in Christchurch, New Zealand, Published by World Scientific Publishing Co. Pte. Ltd., 2010. ISBN: 9789814293792, 356-362, (2010).

14. Sobouti, Y., "Dark companion of baryonic matter in spliral galaxies", arXiv:0812.4127 [gr-qc], 1-3, (2008).

15. Hasani Zonoozi, A., Haghi, H., Sobouti, Y., “Distinguishing between different alternative theories of gravity, using different IMF’s in stellar population synthesis models”, 14th Meeting on Research in Astronomy at IASBS, (2010).

16. Hasani Zonoozi, A., Haghi, H., Sobouti, Y., “Stellar population synthesis, a discriminant between gravity models”, Astron. & Astrophys., 1-13, (2010).

17. Sobouti, Y., Hasani Zonoozi, A., Haghi, H., "Tully-Fisher relation, key to dark companion of baryonic matter", Astron. & Astrophys. (A&A), 507: (2), 635-638, (2009).

18. Sobouti, Y., “Dark companion of baryonic matter - Logarithmic potentials are inherent to GR”, arXiv:0812.4127v1 [gr-qc], 1-4, (2009).

19. Sobouti, Y., “Dark companion of baryonic matter-Beyond the point source”, (2009).

20. Sobouti, Y., "Dark companion of Baryonic matter, III", arXiv:0903.5007v1 [gr-qc], 1-4, (2009).

21. Sobouti, Y., "Revised Dynamics or Dark Matter in Galactic and Extra Galactic Scales?", Astronomy & Astrophysics (A & A), (2008).

22. Sobouti, Y., "The Morality of Exact Sciences", Science and Technology and the Future Development of Societies: International Workshop Proceedings 2008, 10-13, (2008).

23. Sobouti, Y., "The Morality of the Exact Sciences", To appear in the proceedings of the "Interacademy Workshop on Science & Technology and the Future Development of Societies", Fondation des Treilles, Nice, June 26 - July 1, (2006).

24. Sobouti, Y., "Dark Companion of Baryonic Matter", arXiv:0810.2198v1 [gr-qc], 1-4, (2008).

25. Sobouti, Y., "Review of Cosmic Anger: Abdus Salam — the First Muslim Nobel Scientist", MAA Online (The Mathematical Association of America), Publisher: Oxford University Press, ISBN: 9780199208463, 1-305, (2008).

26. Sobouti, Y., "a f(R) Gravitation for Galactic Environments" in THE ELEVENTH MARCEL GROSSMANN MEETING On Recent Developments in Theoretical and Experimental General Relativity, Gravitation and Relativistic Field Theories, Edited by Hagen Kleinert, Robert T Jantzen, Proceedings of the MG11 Meeting on General Relativity. Held 23-29 July 2006 in Berlin, Germany, Published by World Scientific Publishing Co. Pte. Ltd., 2008. ISBN: 9789812834300, 1230-1232, (2008).

27. Sobouti, Y., "An f(R) Gravitation for Galactic Environments", Proceedings of the International Astronomical Union, Volume 2, Issue S238 (Black Holes from Stars to Galaxies – Across the Range of Masses), Published online by Cambridge University Press: 01 August 2006, 451-452, (2006).

28. Sobouti, Y., "An f(R) Gravitation for Galactic Environments", Galaxy Evolution Across the Hubble Time, Edited by F. Combes and J. Palous, Proceedings of the International Astronomical Union 2, IAU Symposium No.235, held 14-17 August, 2006 in Prague, Czech Republic. Cambridge: Cambridge University Press, 2007, 138-138, (2007).

29. Sobouti, Y., "An f(R) Gravitation for Galactic Environments", Astron. & Astrophys. (A&A), 464: (3), 921-925, (2007).

30. Dadashi, N., Safari, H., Nasiri, S., Sobouti, Y., "Exact solutions for standing kink modes of the longitudinally stratified coronal loops", Solar Physics, arXiv:0802.1322v1 [astro-ph], 1-10, (2008).

31. Rahvar, S., Sobouti, Y., "An Inverse f(R) Gravitation for Cosmic Speed up, and Dark Energy Equivalent", Mod.Phys.Lett.A, 23: (23), 1929-1937, (2008).

32. Ter-Kazarian, G. T., Sobouti, Y., "An Extended Phase-Space Stochastic Quantization of Constrained Hamiltonian Systems", J. Phys. A: Math. Theor., 41: (31), 315303-1-315303-8, (2008).

33. Etemad, Sh., Sobouti, Y., "Trends in Basic Sciences in Contemporary Iran: Growth and Structure of Mainstream Basic Sciences", In Science and Technology and the Future Development of Societies, Editor: Glenn Schweitzer, National Research Council of the National Academies, the National Academies Press, Washington, D. C., 24-30, (2008).

34. Sobouti, Y., "Trends in Basic Sciences in Contemporary Iran: The Growth and Cognitive Structure of Mainstream Basic Sciences", To appear in the proceedings of the "Interacademy Workshop on Science & Technology and the Future Development of Societies", Fondation des Treilles, Nice, June 26 - July 1, (2006).

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- **Publications (Books)**

1. Warmed Earth: What has the climate of the 21st Century to offer, Gita Shenasi Press, Tehran, (a book on climate change for Persian speaking communities), 2011.

2. Relativity: Special and General (a graduate-student textbook in Persian), Iran University Press, 2018.

3. Science the Gateway to Understanding, Proceedings of the Workshop on, Tehran, October 2008, Editors: Glenn Schweitzer and Yousef Sobouti, The National Academies Press, Washington, D.C., 2008.

4. Stellar Evolution (by Jack Meadows), translation (1984), Dena Press, Iran.

5. Thermal physics (Book by Philip M. Morse), translation (1993), Nashre Daneshgahi Press, Iran.

6. Commitments of the Islamic Republic of Iran to Climate Change. (2017). (2015 Paris Conference), on the order of the Researchers Support Fund, Letter of the Academy of Sciences, Iran.

7. Letter of the Academy of Sciences, Iran. Journal of the Academy of Sciences of the Islamic Republic of Iran. No. 3, (Summer 2018). Academy of Sciences Publications.

8. Thermodynamics and Statistical Mechanics, (2020), (Revisions and additions are in progress).

9. Basic Sciences of Zanjan: the story of the foundation of the Institute for Advanced Studies in Basic Sciences, narrated by Y. Sobouti, the founder [by Mandana Farhadian], (2022), Nashre Ney publication, Tehran, Iran.

II Conferences and educational activities

II a Conferences and Other External Scientific Work

- **Conferences (recent)**
  - Sientifice Comitee Member of 7th Regional Conferences on Climate Change and Global Warming, Center for Research in Climate Change and Global Warming, IASBS**,** 2022
  - Sientifice Comitee Member of ICRANet-ISFAHAN Astronomy Meeting, November 2021
  - Sientifice Comitee Member of 6th Regional Conferences on Climate Change and Global Warming, Center for Research in Climate Change and Global Warming, IASBS**,** 2021
  - Sientifice Comitee Member of 23rd National Meetings on Research in Astronomy, IASBS, 2020

- **Major contributions to institutional developments**
  - Responsible for the initial conception and realization of Biruni Observatory, Shiraz University, Shiraz, Iran 1971-1975, and Director of the Observatory, 1975-1980
  - Responsible for the creation and development of graduate studies in physics (M.Sc., 1967 and Ph.D., 1986), Shiraz University, Shiraz, Iran
  - Responsible for the initial conception and creation of Institute for Advanced Studies in Basic Sciences, Gava Zang, Zanjan, Iran, 1991, Director, 1991-2010
  - Responsible for the initial conception and creation of Abdul - Rahman Sufi College (a private 1st degree college science and humanity), 2004, Head of the Board of Trustees, 2004 - present
  - Founding member of the Physical Society of Iran, 1983-present
  - Founding member of the Astronomical Society of Iran, 1987-present
  - Founding member of the Iranian Society of Ethics in Science and Technology, 2004-present

- **Memberships and fellowships in societies and scientific organizations**
  - Founding member and member of the Board of Directors of the Physical Society of Iran, 1983-1988, President, 1989-1991 and 1996-2000
  - Founding member of the Astron. Soc. of Iran, 1987, President 1987-1993 and 1996-9
  - Member of the American Astronomical Society, 1968-2002
  - Member of the International Astronomical Union, Commissions 28, 35, 1969 present
  - Founder of Birouni Observatory, Shiraz, Iran, 1971
  - Iranian Journal of Science and Technology, Board of Advisors, 1971-1976, Board of Editors 1983 -1990
  - Iranian Journal of Physics, Board of Advisors, 1987 - present
  - Member of the Third world Academy of Science, 1987 - present
  - Member of the Academy of Sciences of Iran, 1989 - present
  - Member of the Scientific Council, International Center for Theoretical Physics, Trieste, Italy, appointed by UNESCO and IAEA, 1989-1992
  - Founder of Institute for Advanced Studies in Basic Sciences, Zanjan, Iran 1991
  - Member of Board of Trustees of The Regional Library of Science and Technology, appointed by the Ministry of Culture and Higher Education of Iran, 1991-1998
  - Member of the Board of Trustees of the University of Medical Sciences of Zanjan, 2004
  - Member of Technical Advisory Committee of Commission on Science and Technology for Sustainable Development in the South (COMSATS), 2004
  - Member of the International Advisory Committee, Marcel Grossmann Meetings, a la Sapiensa-based (Rome, Italy) annual conference in Honor of Marcel Grossman, the mathematician who helped Einstein to formulate his General Relativity, 2006 – present
  - Founder of Sufi School of Business, a graduate school, stationed in Zanjan, in progress since 2015

II b Work with Students

II c Diploma thesis supervision

- Over 50 students, between 1964 to 1990
- After 1990 to 2018:

Supervision:

1. Mehdi Haghi, MSc, Thesis title: “Symmetries of the Liouville equation for the simple coordinate potential”, Shiraz University, Graduation date: 1990

2. Amir Hosein Fariborz, MSc, Thesis title: “Outdoor synchronous oscillator”, Shiraz University, Graduation date: 1990

3. Mansour Haghighat, MSc, Thesis title: “Eigenvalues of Liouville operator functions with simple coordinate potential”, Shiraz University, Graduation date: 1990

4. Mohammad Ali Hoseinpour Feizi, MSc, Thesis title: “Chaos in simple quantum systems”, Shiraz University, Graduation date: 1990

5. Ali Mohammad Jamilzadeh, MSc, Thesis title: “Chaos in classical dynamical systems”, Shiraz University, Graduation date: 1990

6. Sadollah Nassiri Gheydari, PhD, Thesis title: “Cannon formulation of quantum statistical mechanics”, Shiraz University, Graduation date: 1992

7. Mohammad Hosein Dehghani, PhD, Thesis title: “Liouville Equation Symmetry Group”, Shiraz University, Graduation date: 1992

8. Javad Tahmasebi Birgani, PhD, Shiraz University, Graduation date: 1992

9. Hasan Ranjbar Asgari, MSc, Thesis title: “Spherical solutions of Brans-Dicke equations”, Shiraz University, Graduation date: 1994

10. Hamid Reza Khalesifard, PhD, Thesis title: “Two wave mixing as a new method for measurement of nonlinear refractive index”, Shiraz University, Graduation date: 1996

11. Mansour Haghighat, PhD, Thesis title: “Heavy Hadron weak decay form factors”, Shiraz University, Graduation date: 1996

12. Hossein Hakimi Pajouh, MSc, Thesis title: “Phase Transition and Dynamic Exponets for Convective Motions in Nondissipative Fluids”, IASBS, Graduation date: 1995

13. Reza Alemi, MSc, Thesis title: “Quantum Behavior of Accelerated Electrons as Dissipative Quantum System”, IASBS, Graduation date: 1995

14. Malek Zareyan, MSc, Thesis title: “Dirac Equation in the Randers Metric and Hydrogen Atom in the Finslerian Formalism”, IASBS, Graduation date: 1995

15. Ali Nayeri, MSc, Thesis title: “Tethered Surfades and Space-Time: A Model for the Universe”, IASBS, Graduation date: 1995

16. Habib Gharar Khosroshahi, MSc, Thesis title: “The effect of gravitational waves on stars\”, IASBS, Graduation date: 1996

17. Mahmood Hoseini Farzad, PhD, Thesis title: “Four-wave vortex combination without approximation of slow amplitude changes and its quantum properties”, Shiraz University, Graduation date: 1996

18. Morteza Bayat, MSc, Thesis title: "Classification of Certain Plane Curves Satisfying R=f(d)" , IASBS, Graduation date: 1996

19. Hassan Firuzjahi, MSc, Thesis title: “Patterns Formation in Statistical Description of Hydrodynamical Instabilities”, IASBS, Graduation date: 1997

20. Peyman Ahmadi, MSc, Thesis title: “Long Period Magnetic Phenomena in the Sun as Hydromagnetic Mades of Oscillation”, IASBS, Graduation date: 1998

21. Mohammad Rahim Bordbar, MSc, Thesis title: “An Introduction to flame spectrophotometry”, Shiraz University, Graduation date: 1998

22. Maziyar Khosravi, MSc, Thesis title: “Boson stars in post-Newtonian approximation and poly-tropical structure”, Shiraz University, Graduation date: 1998

23. Arezoo Dianat, MSc, Thesis title: “Hydrogen Atom in Friedmann Universe”, IASBS, Graduation date: 1999

24. Vahid Rezania, PhD, Thesis title: “Normal Modes of Relativistic Systems in Postnewtonian Approxi- Mation and Thestability Curve ofr - Modes in Neutron Stars”, IASBS, Graduation date: 1999

25. Shahram Abbasi, MSc, Thesis title: “A Study of g-Modes of Oscillation of the Sun”, IASBS, Graduation date: 2000

26. Yousef Ali Aabedini, PhD, Thesis title: “Free earth oscillations”, IASBS, Graduation date: 2000

27. Ahmad Hosseini Zadeh, MSc, Thesis title: “Brightness Fluctuations in Globular Clusters”, IASBS, Graduation date: 2001

28. Kayoomars Karami, PhD, Thesis title: “Coronal Heating by Damping of MHD Waves and Third Order Effect of Rotation on Stellar Oscillations”, IASBS, Graduation date: 2003

29. Jalil Naji Damirani, MSc, Thesis title: “Mass Distribution Function for Self-Gravitating Spherical System”, IASBS, Graduation date: 2004

30. Hosein Safari, PhD, Thesis title: “Solar Coronal Plasma Heating I. Loops Oscillations and Resonant Absorption II. Nano-Flares Heating”, IASBS, Graduation date: 2006

31. Fatemeh Taati Asil, PhD, Thesis title: “Phase Space Quantum Mechanics-An Extended Phase Formalism Approach”, IASBS, Graduation date: 2006

32. Hadi Rahmani Baygi, MSc, Thesis title: “Long Term Lumitiosity Variations and Orbital Period Changes in CG CYg”, IASBS, Graduation date: 2006

33. Seyed Hossein Razizadeh, MSc, Thesis title: “A Chromospheric Activity Study of the Binary Star ER Vul Peculae”, Zanjan University, Graduation date: 2006

34. Akram Hassani Zonoozi, PhD, Thesis title: “I. Initial Mass Function: a Distinguishing Factor for Gravity Models II. The Flattening of the Mass Function of the Globular Cluster Palomar 14”, IASBS, Graduation date: 2011

35. Zohreh Ghaffari, MSc, Thesis title: “Metallicity of Starburst Galaxies in Chandra Deep Field South (CDF-S)”, IASBS, Graduation date: 2011

36. Parvin Mostafavi, MSc, Thesis title: “Physical Characteristics of Early Type Galaxies at Redshift 0.3<2<1”, IASBS, Graduation date: 2011

37. Ehsan Moravveji, PhD, Thesis title: “Analysis of the Observational Data of the Blue Supergiant Star Rigel: An Asteroseismological Approach”, IASBS, Graduation date: 2012

38. Amir Naghavi Azad, MSc, Thesis title: “Projecting the Climate of Iran and Its Geographical Neighbours Using Regional Climate Model (RegCM)”, IASBS, Graduation date: 2013

39. Mehdi Mahmoodi, MSc, Thesis title: “Planetary Atomospheres in Solar System”, IASBS, Graduation date: 2014

40. Mahdi Yousefzadeh Soraki, MSc, Thesis title: “Automatic Identification of Supergranular Cell Boundaries”, IASBS, Graduation date: 2014

41. Roohollah Lotfi, MSc, Thesis title: “Study of the atmosphere of the planets of the solar system”, Abdolrahman Sufi Razi Higher Educational Institute, Graduation date: 2014

42. Nasim Ildartanha, MSc, Thesis title: “Reconstructing the Solar Magnetic Field by a Lagrange Multiplier Technique Subject to the Helicity Conservation”, IASBS, Graduation date: 2015

43. Rasul Darvishizadeh, MSc, Thesis title: “Forecast of Iran's climate and its geographical neighbors from 2010 to 2030 using RegCM regional model”, IASBS, Graduation date: 2015

44. Behzad Tahmasebzadeh, MSc, Thesis title: “Inflationary Cosmological Models in Scalar-Tensor Gravity “, IASBS, Graduation date: 2015

45. Zahra Ghafourizadeh, MSc, Thesis title: “The Effect of Dark Energy on Dynamics of Galaxy Clusters”, IASBS, Graduation date: 2015

46. Saeed Rajani, MSc, Thesis title: “Perturbed Metric and its Application in Cosmology”, IASBS, Graduation date: 2016

47. Mohammad Bagher Jahani Poshteh, PhD, Thesis title: “Black Holes in Horava-Lifshitz and Einsteinian Cubic Gravities: Thermodynamics, Phenomenology”, IASBS, Graduation date: 2018

Advisor:

48. Habib Gharar Khosroshahi, PhD, Thesis title: “The Photometric Plane of Galaxies”, IASBS, Graduation date: 2000

49. Iraj Gholami Ghadikolaei, MSc, Thesis title: “A New Technique to Study the Variability of the Sun and Data Analysis”, IASBS, Graduation date: 2001

50. Mahyar Madadi, PhD, Thesis title: “Lattise Boltzmann Simulation of Fluid Flow and Dispersion in Fracture Networks With Self-Affine Surface”, IASBS, Graduation date: 2002

51. Mohammad Taghi Mirtorabi, PhD, Thesis title: “Near Infrared Tio Band and Visual Photometry of Pulsating Giant and Chromospherically Active Stars”, Zanjan University, Graduation date: 2002

52. Sharareh Tavaddod, MSc, Thesis title: “Correction of Tip-Tilt Aberration with Adaptive Optics”, IASBS, Graduation date: 2003

53. Ebrahim Karimi, MSc, Thesis title: “A Study on Laser Cooling and Trapping of Neutral Atoms”, IASBS, Graduation date: 2003

54. Rozita Mohebbi, MSc, Thesis title: “Velocity Curve Analysis of the Spectroscopic Bjnary Stars”, IASBS, Graduation date: 2006

55. Narges Fathalian, MSc, Thesis title: “Investigation of Galactic Disks Rotation Curve in Modified Gravity”, IASBS, Graduation date: 2006

56. Hossein Teimoorinia, PhD, Thesis title: “Physical Properties of Distant Galaxies from Spectro-Photometric Analysis of Multi-Wavelength, Multi-Observatory Deep Surveys”, IASBS, Graduation date: 2010

57. Fateme Amirkhanlou, MSc, Thesis title: “Segmentation of Solar Coronal Image; Application of Neural Networks”, IASBS, Graduation date: 2010

58. Mostafa Rajabi Ebgha, MSc, Thesis title: “Measurement of Tree Growth Using Moire Technique”, IASBS, Graduation date: 2012

II d Other Teaching Duties

- Teacher, High school, Tabriz, Iran, 1953-1956
- Teacher, Cartographic Organization of Iran, Tehran, 1956-1958
- Teaching various physics courses, Shiraz University, 1964 - 1988
- Teaching Physics courses (such as Quantum Mechanics, Gravity, Electrodynamics, Classical Mechanics, General Relativity, Structure and Evolution of Galaxies, Climate Change and Global Warming, Special Relativity, Symmetry and Principles of Conservation and Continuity Equations, statistical mechanics, Thermodynamics), IASBS, Zanjan, 1991 to present

II e Work with Postdocs

1. "Calculate the torque applied to spherical particles, Double break in optical tweezers", Researcher: Ibrahim Madadi, Supervisor: Prof. Yousef Sabouti, Start Date: 2013/08/23, Date of Completion: 2013/11/21, Admission of postdoctoral researcher Allameh Tabatabai Award of the National Elite Foundation.

2. "Modeling and Assessment Time Series Climate Data in National and Regional Level Using Neural Network and Comparing with IPCC Projections", Researcher: Fereshteh Jadari, Supervisor: Prof. Yousef Sabouti, Start Date: 2014/08/23, Date of Completion: September 2015, Admission of postdoctoral researcher Allameh Tabatabai Award of the National Elite Foundation.

3. "Development and application of new Chemometric methods for the Assessment of effects of global change on natural systems from environmental monitoring and climate change data", Researcher: Mahsa Dadashi, Supervisor: Prof. Yousef Sabouti, Start Date: 2014/05/22, Date of Completion: May 2015, Admission of postdoctoral researcher Allameh Tabatabai Award of the National Elite Foundation.

4. "Study of noncommutativity on the scalar field models and its role in accelerated expansion of the Universe", Researcher: Heidar Sheikh Ahmadi, Supervisor: Prof. Yousef Sabouti, Start Date: 2015/09/23, Date of Completion: July 2017, Admission of postdoctoral researcher Allameh Tabatabai Award of the National Elite Foundation.

5. "Investigation of the synchronic effect of synaptic delay and oscillation frequency heterogeneity on neuronal symmetry", Researcher: Ehsan Bolhasani, Supervisor: Prof. Yousef Sabouti and Dr. Alireza Valizadeh, Start Date: 2015/09/23, Date of Completion: October 2016, Admission of postdoctoral researcher Allameh Tabatabai Award of the National Elite Foundation.

6. "Criticality hypothesis and its relation to memory in the brain", Researcher: Amin Mousavi, Supervisor: Prof. Yousef Sabouti and Dr. Alireza Valizadeh, Start Date: 2015/09/23, Date of Completion: May 2017, Admission of postdoctoral researcher Allameh Tabatabai Award of the National Elite Foundation.

7. "Investigation of Doppler effect and linear profiles with one-dimensional hydrodynamic model of rings (P-H) in Transition area (Moss area)", Researcher: Edris Tajfiroozeh, Supervisor: Prof. Yousef Sabouti, Start Date: February 2017, Date of Completion: February 2019, Admission of postdoctoral researcher of Iran National Science Foundation.

8. "Investigation of Doppler effect and linear profiles with one-dimensional hydrodynamic model of rings (P-H) in Transition area (Moss area)", Researcher: Hamed Ghasemi, Supervisor: Prof. Yousef Sabouti, Start Date: June 2017, (In progress), Admission of postdoctoral researcher of the National Elite Foundation.

III. Service activities *[activities carried out in collaboration with ICRANet (e.g. teaching activities, conferences etc...) and outside ICRANet (teaching activities in your university etc…]*

III a. Within ICRANet

1. Sientifice Comitee Member of ICRANet-ISFAHAN Astronomy Meeting, November 2021

2. The Second ICRA Network Workshop, The Chaotic Universe, Pescara, Rome, Italy, February 1999

3. Adjunct Professor, International Center for Relativistic Astrophysics Network (ICRANet), Pescara, Italy, 2015

III b. Outside ICRANet

1. IAU 13th General assembly, Prague, 1967

2. IAU Sym. on planetary nebulae, Czechoslovakia, August 1967

3. IAU 14th General Assembly, Brighton, 1972

4. Black hole astrophysics, Les Houches, August 1972

5. Summer Session on Theory Astrophysics, Trieste, August 1973

6. AAS 141st Meeting, Tuscan, December 1973

7. AAS 143rd Meeting, Rochester, August 1974

8. International School of Physics (E. Fermi), Isolated gravitating systems in General Relativity, Varenna, July 1976

9. IAU Colloquium 38, Stellar Convection, Nice, France, August 1976

10. AAS 150th Meeting, Atlanta, June 1977

11. IAU Symposium 76, Planetary Nebulae, Cornell, June 1977

12. Conference on current problems in stellar pulsation instabilities, Baltimore, June 1978

13. IAU 17th General Assembly, Montreal, August 1979

14. Third Marcel Grossmann Meeting, Shanghai, 1981 (and member of International Advisory Committee)

15. AAS 164th Meeting, Tucson, January 1985

16. IAU Symposium 123, Helio- and astro-seismology, Aarhus, Denmark, July 1986

17. IAU Symposium 126, Globular systems in galaxies, Harvard, Cambrige, August 1986

18. Guest scientist, International Center for Theoretical Physics, Trieste, Summer 1986

19. Aspen Center for Physics, Workshop on Galaxies, June 1987

20. Second Regional Conference on Mathematical Physics, Adana, Turkey, 1987

21. Visiting Fellow, International Center for Theoretical Physics, Trieste, Summer 1988

22. IAU 20th General Assembly, Johns Hopkins University, August 1988

23. Visiting fellow, International Center for Theoretical Physics, Trieste, Summer 1989

24. Fourth Regional Conference on Mathematical Physics, Tehran, Iran 1990

25. Colloquium 132, International Astronomical Union, Problems of stability and instability in stellar system, Delhi October 1990

26. Wigner symposium, Gosslar, Germany, July 1991

27. Third World Academy of Science, General Assembly, Kuwait, October 1992

28. 6th Asian Pacific Regional Meeting of the IAU, Pune, India, August 1993

29. Frontiers in Theoretical Physics, Edirne, Turkey, December 1993

30. IAU 22nd General Assembly, The Hague, August 1994

31. VII International Conference on Symmetry Methods in Physics, Dubna, Russia, 1995

32. Third World Academy of Science, 5th General Assembly, Abuja, Nigeria, Septamber 1995

33. The 7th Asian-Pacific Regional of IAU Meeting, Pusan, Korea, August 1996

34. Inter University Centre for Astronomy & Astrophysics (IUCAA), Pune, India, August 1997

35. 23rd General Assembly Meeting, IAU, Kyoto, Japan, August 1997

36. 6th General Assembly of The Third World Academy of Sciences (TWAS) and the Third Network of Scientific Organizations (TWNSO), Rio does Janerio, Brazil, September 1997

37. The Third World Academy of Sciences (TWAS), Trieste, Italy, November 1997

38. 10th General Meeting, The Third World Academy of Sciences (TWAS), Trieste, Italy, December 1998

39. 7th General Assembly, The Third World Academy of Sciences (TWAS), Dakar, Senegal, November 1999

40. International Colloquium on Group Theoretical Methods in Physics, Dubna, Russia, August 2000

41. Stellar Dynamics from Classic to Modern, San Petersburg, Russia, August 2000

42. 12th General Meeting, Third World Academy of Sciences, Tehran, October 2000

43. Canadian Astronomical Society, Annual Meeting, McMaster University, Hamilton, May 2001

44. 8th General Assembly The Third World Academy of Sciences (TWAS), New Delhi, India, October 2001

45. Potsdam University, Invited lecturer, Potsdam, Germany, March 2002

46. IAU 8th Asian-Pacific Regional Meeting, Tokyo, Japan, July 2002

47. 25th General Assembly Meeting, IAU, Sydney, Australia, July 2003

48. 9th General Assembly The Third World Academy of Sciences (TWAS), Beijing, China, October 2003

49. 15th General Meeting, Third World Academy of Sciences, Trieste, Italy, October 2004

50. National Academy of Science of Armenia and Byurakan Astrophysical Observatory, Invited Lecturer, Yerevan, Armenia, March 2004

51. IAU 9th Asian-Pacific Regional Meeting, Bali, Indonesia, July 2005

52. 16th General Meeting, Third World Academy of Sciences, Alexandria, Egypt, December 2005

53. Inter-Academy Workshop on Science & Technology and the Future Development of Societies, Invited lecturer and head of the Iranian Delegation, Nice, France, June 2006

54. 11th Marcel Grossmann Meeting, Berlin, Germany, July 2006

IV. Other

HONORS

- Recipient of Medallion for Excellence in Research, Government of Iran, 1978
- Fellow of The Third World Academy of Sciences, elected 1987
- Fellow of The Academy of Sciences of Iran, elected 1990
- Award of the Book of the Year of the Islamic Republic of Iran, 1995
- TWAS 2000 Medal Lecturer in Physical Sciences, Tehran, October 2000

- Khwarazmi Award, 2001
- The Lasting Face in Science, Tehran, October 2001
- Iranian Physics Association celebration, Called the annual physics conference in 2002 as Sobouti's conference, 2002
- Afzalipour Award, for Outstanding Research in Physics, 2005
- Islamic Development Bank, Prize in Science and Technology for Institute for Advanced Studies in Basic Sciences – Zanjan under the directorship of Prof Yousef Sobouti, 2006
- Chair of Research in Physics, Fund for Research Support in Iran, 2007
- Exemplary Professor, "Ministry of Science, Research and Technology", 2008
- TWAS Regional Office Prize for Scientific Institution Building in Central and south Asian Region, Bangalore, 2012
- Allamah Tabtabaee Prize, as Distinguished Scientist, Tehran, 2013
- Selected scientist of the Academy of Sciences, and proposed to the President to receive the 1st degree scientific award, 2013
- First Rank Special Award, and honoured for "Lasting Role in the Development of Education and Research", 34th Khwarizmi International Award, 2021
- Medal of excellence of the Iranian National Commission for UNESCO, ("In the Shade of the Sun" medal), 2021
- 1st Prof. Gharib's Award on Basic Sciences, Iranian Association for Ethics in Science and Technology, 2022

Non science publications

- Trends in Basic Sciences in Contemporary Iran: Growth and Structure of Mainstream Basic Sciences", (with Sh. Etemad)In Science and Technology and the Future Development of Societies, Editor: Glenn Schweitzer, National Research Council of the National Academies, the National Academies Press, Washington, D. C., 24-30, 2008.
- The Morality of Exact Sciences, In Science and Technology and the Future Development of Societies, Editor: Glenn Schweitzer, National Research Council of the National Academies, the National Academies Press, Washington, D. C., 10-13, 2008.
- Understanding others the science way, Proceedings of the Workshop on " Science the Gateway to Understanding, Tehran, October 2008", Editors: Glenn Schwitzer and Yousef Sobouti, The National Academies Press, Washington, D.C., 2008.
- Review of Cosmic Anger: Abdus Salam — the First Muslim Nobel Scientist, the Mathematical Association of America, Online, 2008.

2022 List of Publication

1. Sobouti, Y., “Three arguable concepts: point particle singularity, asymmetric action of EM on quantum wave functions, and the Left out restricted Lorentz gauge from U(1)”, Quantum Studies - Mathematics and Foundations (to appear), (2022).

2. Basic Sciences of Zanjan: the story of the foundation of the Institute for Advanced Studies in Basic Sciences, narrated by Y. Sobouti, the founder [by Mandana Farhadian], (2022), Nashre Ney publication, Tehran, Iran.

Lecturers

Research Scientists

Visiting Scientists

CURRICULUM VITAE & TRACK RECORD

Krzysztof Belczynski

Nicolaus Copernicus Astronomical Center
The Polish Academy of Sciences
ul. Bartycka 18, 00-716 Warsaw, Poland

professor
chrisbelczynski@gmail.com
(+48) 602 234-880

EDUCATION:

2001: Ph.D.: "Population Synthesis in Modern Astrophysical Applications"

Copernicus Center, Warsaw: The Polish Academy of Sciences (+ CfA, Harvard)

EMPLOYMENT:

2017–now: professor at Copernicus Center, Warsaw, Poland

2010–2017: associate professor at Warsaw University, Warsaw, Poland

2007–2010: Oppenheimer Fellow at Los Alamos National Laboratory, USA

2004–2007: Tombaugh Fellow at Dept. of Astronomy, New Mexico State University, USA

2001–2004: Lindheimer Fellow at Dept. of Physics and Astronomy, Northwestern University, USA

2000–2001: SAO Predoctoral Fellow at Harvard-Smithsonian Center for Astrophysics, USA

MAJOR RESEARCH INTERESTS:

- Stellar and binary evolution
- Formation of compact objects (black holes, neutron stars, white dwarfs)
- Physics of Gravitational-wave sources (VIRGO/LIGO/KAGRA/ET/LISA)
- Progenitors Gamma-ray bursts (SWIFT/INTEGRAL)
- Populations of Galactic and extragalactic X-ray binaries (CHANDRA/XMM NEWTON)
- Progenitors of Type Ia Supernovae (KECK, HUBBLE, SUBARU)

PUBLICATION STATISTICS:

- number of papers: 341 (first author: 76), high impact papers: 56 (first author: 14)
- citations: 29,700 (the most cited paper: 7,700, the most cited first author paper: 787)
- H index: 74, H1 index: 35 (time from Ph.D.: 21 years)

SCIENCE/PUBLIC OUTREACH:

- science (100+ papers based on): database of astrophysical models (www.syntheticuniverse.org)
- citizen science (40,000+ users): virtual computational astro-center (universeathome.pl)
- media: Nature, Science, National Geographic, PAP, Mail Online UK, Google News, Buzz Feed

AWARDS, FELLOWSHIPS, GRANTS:

2021:	Maria Sklodowska-Curie Science Award of The Polish Academy of Sciences
2017:	Polish Physical Society Prize (Virgo/Poland group)
2016:	Gruber Cosmology Prize, USA (LIGO/Virgo team members)
2016:	Special Breakthrough Prize in Physics, USA (LIGO/Virgo Collaboration)
2016:	"Group Science Award" from Warsaw University President
2016:	"Distinguished Visitor Program" from Australian National University (Canberra)
2016:	Nicolaus Copernicus Medal, The Polish Academy of Sciences (Virgo/Poland group)
2014:	Fellow of The American Physical Society (USA)
2014:	"Distinguished Visitor Fellowship" from LIGO/Caltech director (D. Reitze)
2013:	"Excellence in Teaching Award" – Physics Department, Warsaw University
2012:	"Master 2012" – distinguished scholar subsidy, Polish Science Foundation
2011:	"Individual Science Award" from Warsaw University President
2002–2008:	3 Chandra Theory Grants (PI of one), 3 NSF Grants (CoI), USA
1999–2022:	13 Polish Science Foundation Grants (PI of 8)
2001:	Polish Science Foundation Award for Best Polish Young Scientists
1999:	Annual Prize for Outstanding Young Astronomer, The Polish Academy of Sciences
1997/1998:	2 visiting fellowships at CNRS, at Institute d'Astrophysique, Paris, France

MEMBERSHIPS:

- "American Physical Society", 2011-present
- "VIRGO Scientific Collaboration", 2012-2016
- "LIGO Scientific Collaboration", 2002-2007

MAIN COLLABORATIONS:

- Chris Fryer: Los Alamos National Laboratory (USA)
- Dan Holz: University of Chicago (USA)
- Emanuele Berti: University of Mississippi (USA)
- Selma de Mink: University of Amsterdam (Netherlands)
- Tomasz Bulik: Warsaw University (Poland)
- Jean-Pierre Lasota: Institut d'Astrophysique/CNRS (France)
- Georges Meynet: University of Geneva (Switzerland)
- Richard O'Shaughnessy: Rochester Institute of Technology (USA)
- Rosalba Perna: Stony Brook University (USA)

SELECTED PAPERS:

1. "The first gravitational-wave source from the isolated evolution of two stars in the 40-100 solar mass range",
Belczynski, K., Holz, D., Bulik, T., O'Shaughnessy, R., Nature, 534, 512 [**citations: 607**]

2. "A Comprehensive Study of Binary Compact Objects as Gravitational Wave Sources: Evolutionary Channels, Rates, and Physical Properties",
Belczynski, K., Kalogera, V., Bulik, T., 2002, ApJ, 572, 407 [**787**]

3. "TOPICAL REVIEW: Predictions for the rates of compact binary coalescences observable by ground-based gravitational-wave detectors",
The LIGO/VIRGO Collaboration + **Belczynski, K.**: J.Abadie, et al., 2010, CQGra, 27, 3001 [**986**]

4. "Compact Object Modeling with the `StarTrack` Population Synthesis Code",
Belczynski, K., Kalogera, V., Rasio, F., Taam, R., Zezas, A., Bulik, T., Maccarone, T., Ivanova, N., 2008, ApJS, 174, 223 [**584**]

5. "A catalogue of symbiotic stars",
Belczynski, K., Mikolajewska, J., Munari, U., Ivison, R. J., Friedjung, M., 2000, A&AS 146, 407 [**299**]

6. "A Study of Compact Object Mergers as Short Gamma-Ray Burst Progenitors",
Belczynski, K., Perna, R., Bulik, T., Kalogera, V., Ivanova, N., Lamb, D., 2006, ApJ, 648, 1110 [**256**]

7. "Rates and Delay Times of Type Ia Supernovae",
Ruiter, A., **Belczynski, K.**, Fryer, C., 2009, ApJ, 699, 2026 [**255**]

8. "On the Rarity of Double Black Hole Binaries: Consequences for Gravitational Wave Detection",
Belczynski, K., Taam, R., Kalogera, V., Rasio, F., Bulik, T., 2007, ApJ, 662, 504 [**191**]

9. "On The Maximum Mass of Stellar Black Holes",
Belczynski, K., Bulik, T., Fryer, C., Ruiter, A., Valsecchi, F., Vink, J., Hurley, J., 2010, ApJ, 714, 1217 [**474**]

10. "Double Compact Objects. I. The Significance of the Common Envelope on Merger Rates",
Dominik, M., **Belczynski, K.**, Fryer, C., Holz, D., Berti, E., Bulik, T., Mandel, I., O'Shaughnessy, R., 2012, ApJ, 759, 52 [**574**]

11. "Compact Remnant Mass Function: Dependence on the Explosion Mechanism and Metallicity",
Fryer, C., **Belczynski, K.**, Wiktorowicz, G., Dominik, M., Kalogera, V., Holz, D., 2012, ApJ, 749, 91 [**604**]

12. "Formation and evolution of compact binaries in globular clusters - II. Binaries with neutron stars",
Ivanova, N.; Heinke, C., Rasio, F., **Belczynski, K.**, Fregeau, J., 2008, MNRAS, 386, 553 [**227**]

13. "The Effect of Metallicity on the Detection Prospects for Gravitational Waves",
Belczynski, K., Dominik, M., Bulik, T., O'Shaughnessy, R., Fryer, C., Holz, D., 2010, ApJ Lett., 715, L138 [**261**]

Surname Name

Bisnovatyi-Kogan Gennady

Photo 

Position: Main Scientific Researcher, IKI RAS, Moscow
Period covered: Presently

I Scientific Work

Construction of the model of the universe to solve the problem of Hubble Tension..

II Conferences and educational activities

II a Conferences and Other External Scientific Work

1."Achievements of Russian Astrophysics 2022: theory and experiment."
Sternberg Inst. MSU, Moscow, December 2022.

2. "Magneto-plasmic processes in relativistic astrophysics"
IKI RAS Branch, town Tarusa, Kaluga reg. June 2022

3. "Bursting Universe by Robots Eyes 2022."
Sternberg Inst. MSU, Moscow, August 2022.

4. " The Universe: from Big Bang until our days." In memory of N.S. Kardashev 90 years.
ASC LPI RAS, Moscow. April 2022.

II b Work With Students

1 student MFTI (magister course),

1 student MEPHI (magister course)

II c Diploma thesis supervision

II d Other Teaching Duties

Lecture course "Relativistic Astrophysics" in MEPHI

II e. Work With Postdocs

III. Service activities*[activities carried out in collaboration with ICRANet(e.g. teaching activities, conferences etc...) and outside ICRANet (teaching activities in your university etc…]*

*III a. Within ICRANet*Talk on the ICRANet seminar 25November 2022.

III b. Outside ICRANet

IV. Other

2021List of Publication

1.About the Observational Check of the Mechanism of Gamma Radiation in Soft Gamma Repeaters (SGR**)**
Astronomy Reports, Volume 66, Issue 8, p.644-647

2.Analytical study of higher-order ring images of the accretion disk around a black hole (withO.Yu. Tsupko)

Physical Review D, Volume 105, Issue 6, article id.064040

3. Dynamic Model of a Non-equilibrium Chemical Composition Formation in the Shell of Single Neutron Stars(with A.Yu. Ignatovskiy)

Astronomy Reports, Volume 66, Issue 3, p.221-235

Behzad Eslam Panah

Position: **Assistant Professor at University of Mazandaran**

Period covered: 2020 up to now

I Scientific Work

I published over sixty papers in international journals (more than forty are in the ranking Q1).

I have evaluated over **seventy papers** in international journals as a **referee** in the following journals:

- The European Physical Journal C
- General Relativity and Gravitation
- Progress of Physics
- Physical Review D
- Classical and Quantum Gravity
- Annalen der Physics
- Nuclear Physics B
- Canadian Journal of Physics
- Europhysics Letters
- International Journal of Theoretical Physics
- Advances in High Energy Physics
- Physica Scripta
- Galaxies
- Modern Physics Letters A
- Iranian Journal of Science and Technology, Transactions A: Science
- Symmetry
- Universe
- Journal of Physics Communications

I am an **editor** in the following international journals:

- Frontiers in Physics
- Galaxies

I work on the following topics:

- black hole physics and its thermodynamics
- modified theories of gravity
- nonlinear electromagnetic fields and their coupling to gravitation.
- compact objects (white dwarfs, neutron stars, gravastars, dark energy stars, and quark stars) in modified theories of gravity

I was among the top 2% of the most cited authors, according to Elsevier in 2020, 2021, and 2022.

II Conferences and educational activities

I teach the following topics at the University of Mazandaran

- Special Relativity
- General Relativity (for master students)
- Analytical Mechanics
- Mathematical Physics
- Modern Quantum (for master students)
- Modern Physics
- Physics 1 (Halliday, Vol 1)
- Physics 2 (Halliday, Vol 3)

I work with master and Ph. D students on compact objects in modified theories
I am the second supervisor of Ph. D students (two students) the results were published in Physics Letters B and Eur. Phys. J. C.
I published over **fifteen papers** at national conferences.

III. Service activities

I am a **part-time researcher** for ICRANet and I published over **twenty-five** papers with ICRANet's affiliation.

List of Publications (2021 and 2022)

1-"**editorial: black holes, extended phase space thermodynamics, and phase transitions**"

C. Bhamidipati, M. Chabab, and B. Eslam Panah, Front. Phys. 9 (2021) 706197.

2-"**Can the power Maxwell nonlinear electrodynamics theory remove the singularity of the electric field of point-like charges at their locations**?"

B. Eslam Panah, Europhys. Lett. 134 (2021) 20005.

3-"**Geometrical thermodynamics and P-V criticality of charged accelerating AdS black holes**"

Kh. Jafarzade, J. Sadeghi, B. Eslam Panah, S. H. Hendi, Annals of Physics 432 (2021) 168577.

4-"**Thermal stability, P−V criticality and heat engine of charged rotating accelerating black holes**"

B. Eslam Panah, Kh. Jafarzade, General Relativity and Gravitation. 54 (2022) 19.

5-"**The structure of hybrid neutron star in Einstein-Λ gravity**"

T. Yazdizadeh, G. H. Bordbar, B. Eslam Panah, Physics of the Dark Universe 35 (2022) 100982.

6-"**Structure of magnetized strange quark star in perturbative QCD**"

J.Sedaghat, S.M.Zebarjad, G. H. Bordbar, B. EslamPanah, Physics Letters B 829 (2022) 137032.

7-"**Neutron stars in mimetic gravity**"

H. Noshad, S. H. Hendi, B. Eslam Panah, Eur. Phys. J. C 82 (2022) 394.

8-"**Is the remnant of GW190425 a strange quark star**?"

J.Sedaghat, S.M.Zebarjad, G. H. Bordbar, B. Eslam Panah, R. Moradi, Physics Letters B 833 (2022) 137388.

9-"**Dark energy star in gravity's rainbow**"

A.Bagheri Tudeshki, G. H. Bordbar, B. Eslam Panah, Physics Letters B 835 (2022) 137523.

10-"**Two-dimensional Lifshitz-like AdS black holes in F (R) gravity**"

B. Eslam Panah, J. Math. Phys. 63 (2022) 112502.

Lecian Orchidea Maria

Photo

Sapienza University of Rome, Rome, Italy

Faculty of Medicine and Pharmacy

Position: Professor

Period covered: 2022

Sapienza University of Rome, Rome, Italy,

Faculty of Medicine and Dentistry

Position: Professor

Period covered: 2022

Kursk State University, Kursk, Russia

Faculty of Algebra, Geometry and Didactics of Mathematics Theory

Position: Vsiting Profesor, Programme Education in Russia of Ministry of Science and Higher Education of the Russian Federation for foreign nationals.

Period covered: 1 October 2022-31 December 2022.

Period covered: 11-29 July 2022:

Position: Intensive Research Programme IHES 2022 Summer School

IHES- Institut des Hautes Etudes Scientiques, Bures-sur-Yvette, France- online

The Langlands Programme

I Scientific Work

Research in Theoretical Physics.

Research in Mathematics.

II Conferences and educational activities

II a Conferences and Other External Scientific Work

4-12 July 2022, XXV Workshop What comes beyond the Standard models? , Contribution: Primordial antimatter and Dark Matter celestial objects, Bled, Slovenia.

30 May - 3 June, 2022: Informational Architecture of Spacetime Workshop, OISTO-Okinawa

Institute of Science and Technology Graduate University, Okinawa, Japan.

20- 22 May 2022: AMS 2022- 2022 Asia- Pacic Conference on Applied Mathematics

and Statistics, Seoul, South Corea.

II b Work With Students

II c Diploma thesis supervision

II d Other Teaching Duties

II e. Work With Postdocs

III. Service activities *[activities carried out in collaboration with ICRANet (e.g. teaching activities, conferences etc...) and outside ICRANet (teaching activities in your university etc…]*

III a. Within ICRANet

III b. Outside ICRANet

Conference organization

Scientific Board

Aerospace 2022- International Conference and Expo on Aerospace and Aeronautical Engineering

December 08-10, 2022, Seville, Spain.

Scientic Committee Member

International Conference on Catalysis and Chemical Science- ICCS 2022

October 03-05 2022, Rome, Italy.

Organizing Committee Member

BIOMED- Global Conference on Biomedical Engineering and Systems

September 26-28 2022, Budapest, Hungary.

Scientific Committee Member

ASTROMEET2022- International Meeting on Astronomy and Astrophysics

20-22 June 2022, Copenhagen, Denmark.

Organizing Committee Member

AMS 2022- 2022 Asia- Pacic Conference on Applied Mathematics and Statistics

May 20-22, Seoul, South Corea.

Scientific Board

Biomaterials-2022- Global Conference on Biomaterials

May 16-18, 2022, London, UK.

Organizing Committee Member

Global Summit on Gravitation, Astrophysics and Cosmology (GSGAC2022)

21-23 April 2022, Tokyo, Japan.

General Co-Chair

GMEE2022- 2022 7th International Conference on Green Materials and Environmental Engineering

January 16-17, 2022, Changsha, China.

IV. Other

Editor

Editoral Board: Frontiers in Physics, Cosmology.

Special Issue Editor: Galaxies MDPI, Special Issue 'Galactic Structure and Dynamics'.

Reviewer

Frontiers in Physics, High-Energy and Astroparticle Physics

Applied Sciences

Micromachines

Fractal and Fractional

2021 List of Publication

Book:

O. M. Lecian, Some contributions to the space-time: Contributions to Einsteinian gravity , OmniScriptum S.R.L. LAP LAMBERT Academic Publishing, Chisinau, 2022.

Research papers:

OML, Selected topics in cohomology of non-arithmetical groups (algebras) and open

questions, International Journal Of Mathematics And Computer Research- IJMCR, 10, 3002-3014 (2022).

OML, A Classification of Surds of Non-Arithmetical Groups, International Journal Of Mathematics And Computer Research- IJMCR, 10, 2961-2968 (2022).

Proceedings:

M.Yu. Khlopov, OML, Evolution and Possible Forms of Primordial Antimatter and Dark Matter celestial objects, Proceedings 25th Workshop on What Comes Beyond the Standard Models? July 4-12, 2022, Bled, Slovenia [arXiv:2211.09579 [gr-qc]].

Surname Name **Photo** 

Wenbin Lin

Position: Professor and Dean,School of Mathematics and Physics,University of South China
Period covered: 2022.01-2022.12

I Scientific Work

My research includes but not limited to the theory of post-Newtonian theory, gravitational wave theory, quasi-Keplerian motion, deep learning and scientific computing.

II Conferences and educational activities

II a Conferences and Other External Scientific Work

II b Work With Students

PhD students: Ya Guo, Yi Zhu, Jie Li, Xiaoyan Zhu, Wei Gao

Master students: Yangguang Zhang, Hao Zhang, Yang Zhang, Jie Li, Ting Zhou

II c Diploma thesis supervision

II d Other Teaching Duties

Computational Physics

II e. Work With Postdocs

Dr. Xiaojun Wu, Linqing Gao, Fengyi Zhang

III. Service activities *[activities carried out in collaboration with ICRANet(e.g. teaching activities, conferences etc...) and outside ICRANet (teaching activities in your university etc…]*

III a. Within ICRANet

III b. Outside ICRANet

Associate Editor of Heliyon

IV. Other

2021List of Publication

1. Bo Yang, Chunhua Jiang, **Wenbin Lin***, The second post-Newtonian motion in Reissner-Nordström spacetime, *Physical Review* D, 105, 064003 (2022).
2. Bo Yang, Chunhua Jiang, Guansheng He, **Wenbin Lin***, The quasi-Keplerian motion of the charged test particle in Reissner-Nordström spacetime under the Wagoner-Will-Epstein-Haugan representation, *Symmetry*, 14, 2661 (2022).
3. Guansheng He, **Wenbin Lin**, Kerr-Newman black hole lensing of relativistic massive particles in the weak field limit, *Physical Review* D,105, 104304 (2022).
4. Hiroaki Nakajima, **Wenbin Lin***, New Chandrasekhar transformation in Kerr spacetime, *Physical Review* D,105, 064036 (2022).
5. Ya Jiang, **Wenbin Lin***, Weikun Zhao, Chaofeng Wang*, AcsiNet: Deep learning based channel prediction for FDD downlink communication, *IEEE Wireless Communications Letters*, DOI: 10.1109/LWC.2022.3230950 (2022).
6. **Wenbin Lin***, Jie. Li, Bo. Yang, Chunhua Jiang, Coordinates in general relativity: Orbit, velocity, and the time form perihelion to aphelion, *Gravitationand Cosmology*, in press (2023).

Park Myeong-Gu

Position: Visiting Scientist
Period covered: 1st Sep. 2016 ~ 31st Aug. 2017

I Scientific Work

Physics of accretion

Exoplanets

Barred Galaxies

Particle Acceleration around Black Holes

II Conferences and educational activities

III. Service activities

III a Serving as the President of the Korean Astronomical Socity

Teaching at Kyungpook National University, KOREA: Advanced Astrophysics 1, Advanced Cosmology 2

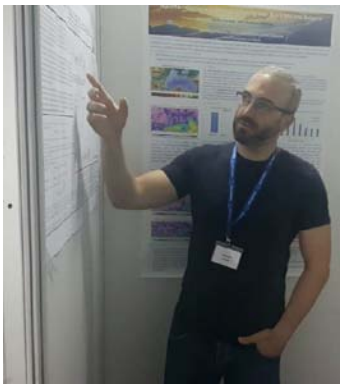
IV. Other

2022 List of Publication

G. Valyavin et al., EXPLANATION: Exoplanet and Transient Event Investigation Project—Optical Facilities and Solutions, Photonics 2022, 9(12) (2022.12.08) [doi: 10.3390/photonics9120950]

Jeong, G., Lee, B. C., Park, M. G., Bang, T. Y., Han, I., Search for Exoplanets around Northern Circumpolar Stars V. Three likely planetary companions to the giant stars HD 19615, HD 150010, and HD 174205, Astronomy & Astrophysics 662:A12(6pp) (2022.06) [doi: 10.1051/0004-6361/202142379]

Yun Hee Lee, Myeong-Gu Park, Ho Seong Hwang, Hong Bae Ann, Haeun Chung, Taehyun Kim, Properties of Fast and Slow Bars Classified by Epicyclic Frequency Curves from Photometry of Barred Galaxies, The Astrophysical Journal 926:58 (18pp) (2022.02.10) [doi: 10.3847/1538-4357/ac3bc1]



Surname Name

Dr. Klaudio Peqini

Position: **Visiting researcher**
Period covered: **16 – 30 September 2018**

I Scientific Work

During these recent years, I have been working on complex systems and their respective dynamics, I have delved more on various numerical methods employed in the study of such complex systems, I have analyzed and studied various machine learning algorithms and schemes for better understanding time series or other types of data, etc.

II Conferences and educational activities

II a Conferences and Other External Scientific Work

- N. Kilifarska, **K. Peqini**: "Ozone response to short-lasting changes in galactic cosmic rays". Oral presentation at the XXII International Congress of the Carpathian-Balkan Geological Association, held in Plovdiv, Bulgaria, 07-11.09.2022.
- **K. Peqini**, E. Koçi, D. Prenga, R. Osmanaj: "The Core-Mantle Boundary velocity field in the recent decades". Oral presentation in the 11th International Conference on Mathematical Modeling in Physical Sciences, held online, 05-08.09.2022.
- R. Osmanaj, **K. Peqini**, D. Prenga: "Lanczos method applications in Lattice QCD". Oral presentation in the 11th International Conference on Mathematical Modeling in Physical Sciences, held online, 05-08.09.2022.
- D. Prenga, M. Hysenlli, **K. Peqini**, R. Osmanaj, E. Kushta: "Analyzing influential factors on physics knowledge shortcomings for high school student's during Covid closure and estimation of the opportune strategies to improve it". Oral presentation in the 11th International Conference on Mathematical Modeling in Physical Sciences, held online, 05-08.09.2022.
- **K. Peqini**, N. Kilifarska: "Response of geomagnetic field related to atmospheric composition". Oral presentation in the 11th Congress of the Balkan Physical Society, held in Belgrade, Serbia, 28.08-01.09.2022.
- D. Prenga, **K. Peqini**, R. Osmanaj: "Preliminary results on the multifractal nature of the main geomagnetic field". Poster presentation in the 11th Congress of the Balkan Physical Society, held in Belgrade, Serbia, 28.08-01.09.2022.
- D. Prenga, K. Peqini, R. Osmanaj: "The study of the dynamics for electorate system by using q-distributions-a case study". Oral presentation in the International Conference of Mathematical Modelling in Physical Sciences (IC–MSQUARE 2021), held virtually but planned in Budapest, Hungary, 06-09 September 2021.

- K. Peqini, D. Prenga, R. Osmanaj: "Scaling laws and phase space analysis of a geomagnetic domino model". Oral presentation in the International Conference of Mathematical Modelling in Physical Sciences (IC–MSQUARE 2021), held virtually but planned in Budapest, Hungary, 06-09 September 2021.
- J. Hoxha, K. Peqini, A. Uka: "Forecasting dipolar geomagnetic field from palaeo-models and synthetic models using neural networks". Oral presentation in the Joint Scientific Assembly IAGA – IASPEI 2021, held virtually but planned in Hyderabad, India, 21-27 August 2021.
- A. Uka, K. Peqini, J. Hoxha: "FORECASTING VELOCITY FIELD AT THE CORE-MANTLE BOUNDARY USING NEURAL NETWORKS". Oral presentation in the Joint Scientific Assembly IAGA – IASPEI 2021, held virtually but planned in Hyderabad, India, 21-27 August 2021.
- R. Osmanaj, K. Peqini, D. Hyka: "QCDLAB2, A Learning Tool for Students in Lattice QCD". Oral presentation in the Annual International Conferences on Sciences & Engineering, held virtually but planned in Athens, Greece, 19-22 July 2021.

III. Service activities*[activities carried out in collaboration with ICRANet(e.g. teaching activities, conferences etc...) and outside ICRANet (teaching activities in your university etc…]*

-

IV. Other

Scientific visits

20-24.11.2021 Visit to the Climate, Atmosphere and Water Resources Institute of the Bulgarian Academy of Sciences (CAWRI-BAS), Sofia, Bulgaria. The visit was promoted by the Balkan Physical Society (BPU) and was funded by the International School of Theoretical Physics (ICTP, Trieste)

21-25.07.2022 Visit to the Politecnico di Bari as part of the Erasmus+ program

Scientific positions

08.2021 Representative of Albania to the International Association of Geomagnetism and Aeronomy (IAGA).

03.2019 Member of the editorial team of the SCIREA Journal of Physics.

2021List of Publication

- Peti (Koçi) E., **Peqini K.**, and Sauli D., 2022. Mbi parashikimin e intervaleve të oshilacionit në zgjidhjet e ekuacioneve diferenciale lineare të rendit të dytë. *BSHN (UT)*, 31, 111-125. https://api.fshn.edu.al/uploads/1_E_Koci_c24e31655a.pdf
- 07.2022 https://www.scipod.global/dr-klaudio-peqini-professor-bejo-duka-mapping-flows-at-earths-core-mantle-boundary/
- 05.2022 N A Kilifarska and K Peqini 2022 J. Phys.: Conf. Ser. 2255 012013
- 12.2021 Peqini K., Prenga D., Osmanaj R., 2021. Scaling laws and phase space analysis of a geomagnetic domino model. J. Phys.: Conf. Ser. 2090 012030. Impact factor: 0.547.
- 12.2021 Prenga D., Peqini K., Osmanaj R., 2021. The analysis of the dynamics of the electorate system by using q-distribution-a case study. J. Phys.: Conf. Ser. 2090 012073. Impact factor: 0.547.

12.2021 Peqini K., Osmanaj R., 2021. A Computational Model of Maxwell's Distribution for Undergraduates. International Journal of Physics and Chemistry Education, 13(2), 33-45. https://doi.org/10.51724/ijpce.v13i2.14

- 12.2021 Osmanaj R., Peqini K., Hyka D., 2021. The Use of PhET Simulations in Teaching Modality in High Schools in Albania before and during COVID 19-Pandemic. European Journal of Education and Pedagogy, 2(6), 91-94. https://doi.org/10.24018/ejedu.2021.2.6.229

Surname Name **Photo**

Qadir Asghar

Position: Visiting Professor, AS-SMS, Government College University, Lahore, Pakistan
Period covered: 2021/22

I Scientific Work

Ia Journal Publications

1. "Probing Szekeres' colliding sandwich gravitational waves", K.Q. Abbbasi, I. Hussain and **A. Qadir**, *Eur. J. Phys. Plus* (2021) 136:565 (Online 16 pages).

2. "Virial Clouds and Rotational Asymmetry in Galactic Haloes", **A. Qadir** and F. De Paolis, *Arabian J. Math*. (2021) DOI 10.1007/s40065-021-00335-z.

3. "Evolution of virial clouds-I: from surface of last scattering up to the formation of population-III stars", N. Tahir, **A. Qadir**, M. Sakhi and F. De Paolis, *Euro. Phys. J. C* **81** (2021) 827 (6 pages); arXiv.org > astro-ph > arXiv:2109.11322.

4. "The development of general relativity and the cosmological constant", **A. Qadir**, *Int. J. Mod. Phys. D* and also in *Proc. MG16* (2022).

5. "Foliation of Schwarzschild, Reissner-Nordström and Suture Universe Model Metrics Revisited", **A. Qadir**, *Int. J. Mod. Phys. D* **31 (2022)** 2240007**,** 1-20.

6. "Physical significance of Noether symmetries", **A. Qadir** and U. Camci, *Symmetry* **14**. (2022) 476; **https://doi.org/10.3390/sym14030476**.

7. "The rotational kinetic Sunyaev-Zeldovich contribution to the temperature asymmetry toward the M31 halo", N. Tahir, F. De Paolis, **A. Qadir** and A.N. Nucita, *Astronomy & Astrophysics* **664** (2022) A30, 1-5; DOI: 10.1051/0004-6361/202142686.

8. "On the galactic halos rotation by Planck data", N. Tahir, F. De Paolis, **A. Qadir** and A.N. Nucita, *Symmetry* Special Issue on "Recent Advances in the Studies of Cosmic Microwave Background", Guest Editor: Beatriz Ruiz-Granados (to appear).

Ib Conference Publications

9. "Complex methods for Lie symmetry analysis". **A. Qadir** and F.M. Mahomed, *Proc. Confr. In Honour of Nail H. Ibragimov* 2019, Eds. A.C. Luo and R.K. Gazizov, *Nonlinear Physical Science* (Higher Education Press 2021) 125—151; https://doi.org/10.1007/978-981-16-4683-6_4; eBook ISBN: 978-981-16-4683-6l; Print ISBN: 978-981-16-4682-9.

10. "Virial clouds evolution from the last scattering surface upto the formation of first stars", N. Tahir, **A. Qadir**, M. Sakhi and F. De Poalis, *Proc. 16th Marcel Grossmann Meeting*, World Scientific 2022.

11. "Testing Weyl-modified gravity on M31 and Milky Way", M. Bilal and **A. Qadir**, *Proc. 16th Marcel Grossmann Meeting*, World Scientific 2022.

II Conferences and educational activities

II a Conferences and Other External Scientific Work

1. International Workshop on "Relativistic Astrophysics and Gravitation", IWRAG-2021, Tashkent, Uzbekistan, 12 – 14 May, 2021 (online). I was a Keynote speaker.

2. Sixteenth Marcel Grossman Meeting, Rome, Italy, 5 – 10 July, 221 (online). I was Chair of the Ulugh Beg Session, which was held at the COMSATS University, Islamabad, Pakistan. I was a Keynote speaker.

3. 4th PU International Conference on Gravitation and Cosmology (4th PUICGC) Lahore, Pakistan, November 22-25, 2021. Conference was dedicated to me on my 75th birthday. I was a Keynote speaker as well.

4. Prof. Remo Ruffini Festschrift in Celebration of Prof. Remo Ruffini 80° Birthday, Nice, France, May 16 -18, 2022 (online).

5. Conference on Quantum Information, Quaid-e-Azam University, 20 May 2022.

6. International Workshop on Central Asia Achievements in Astrophysics, Theory of Elementary Particles, Hydrodynamics and Plasma Physics, Almaty, Uzbekistan,15 – 17 June, 2022 (online).

7. International Mathematics Conference on Mathematical Advances and Applications, Quaid-e-Azam University, September 7-9, 2022. I was a keynote speaker and chaired two sessions.

8. 17th Symposium on the Frontiers of Physics, Pakistan Physical Society, Government College University, Lahore, Pakistan, 1 – 3 December 2022. I was involved in organizing the Conference and arranged for talks by Francesco De Paolis and Roger Penrose. The former was in the first Plenary session on the 1st, which I chaired. The latter was an afternoon Plenary talk on the 2nd, which I also chaired. I also chaired a parallel session, which was one of the last. I was also a Keynote speaker.

9. Modern Achievements in Symmetries of Differential Equations (Symmetry 2022), Suranaree University of Technology, Nakhon Ratchasima, Thailand, 13 – 16 December 2022, I attended online.

(There have been other Conferences/Workshops/Symposia during this time, but I do not have a record of those.)

II b Work With Students

1. Taught a PhD course at the Abdus Salam School of Mathematical Sciences of the Government College University, Lahore, Pakistan in Spring 2021, on *Symmetry Methods for Differential equations.*

2. Taught two courses at the COMSATS UNIVERSITY ISLAMABAD IN THE Spring Semester of 2022:

(a) *Group Theory for Physicists* (BS 7th and 8th Semesters);

(b) *Gravitation and Cosmology* (M.Phil. 2nd Semester).

II c Diploma thesis supervision

1. Noraiz Tahir, joint supervision for PhD with Francesco De Paolis and Achille N. Nucita at the Department of Mathematics and Physics, of Salento University, Lecce, Italy, in Astrophysics, on Galactic Haloes (in progress, expected completion 2023).

2. Kamran Qadir Abbasi, joint supervision for PhD with Ibrar Hussain at the National University of Sciences and Technology, Islamabad, Pakistan, in Relativity on Colliding Gravitational Waves (in progress, completion year uncertain).

3. Aneela Naheed, joint supervision with M. Usman at the Institute of Space Technology, Islamabad, Pakistan, in Relativity & Cosmology, on a Classical Resolution of the Information Loss Paradox (work started).

4. Junaid Mohy-Ud Din, joint supervision for PhD with Bilal Masoud at the Centre for High Energy Physics, Punjab University, Lahore, Pakistan, in Relativity on Modified Relativistic Dynamics (work started).

5. Rimsha Khali, M.Phil., Abdus Salam School for Mathematical Sciences, Government College University, Lahore, Pakistan, in Lie Symmetry Analysis on *Double Splitting of a Complex Scalar Ordinary Differential Equation*, 2021.

6. Aamina Jamshaid, M. Phil., Abdus Salam School for Mathematical Sciences, Government College University, Lahore, Pakistan, in Special Functions, on *Comparison of the Fourier Transform and Distributional Representation in the Context of the Family of Zeta Functions*. 2021.

7. M. Talha, M.Phil., Abdus Salam School for Mathematical Sciences, Government College University, Lahore, Pakistan, in Lie Symmetry Analysis on *Contact Symmetries of Scalar Third Order Ordinary Differential equations*, 2022.

8. M. Bilal, M.Phil., Abdus Salam School for Mathematical Sciences, Government College University, Lahore, Pakistan, in General Relativity/Cosmology, on *Modified Relativistic Dynamics*, 2022.

9. Aqsa Yasmin, joint supervision for M.Phil. with Azad A. Siddiqui at the National University of Sciences and Technology, Islamabad, Pakistan, in Relativity/Cosmology, on *Massive Sterile Neutrinos For Dark Matter Halos,* 2022.

10. M. Usama Naveed, joint supervision for M.Phil. with S.M. Hassan of the Physics Department at the Lahore University of Management Sciences, Lahore, Pakistan, in Relativity, on Flat Foliation of Spacetimes (work just started).

II d Other Teaching Duties

Nil.

II e. Work With Postdocs

Nil.

III. Service activities *[activities carried out in collaboration with ICRANet (e.g. teaching activities, conferences etc...) and outside ICRANet (teaching activities in your university etc…]*

III a. Within ICRANet (nil.)

III b. Outside ICRANet (Nil.)

IV. Other

Book *Topology for Beginners*, Noor Mohammad, Asghar Qadir, Imran Parvez Khan, Oxford University Press 2022.

2021 List of Publication (Listed in Scientific Work)

Raffaelli Bernard

- Institut de Mathématiques de Bourgogne:
  October 2020 – Today

Position:
Associate Professor of Physics atESTBB – Graduate School of Engineering,
Université Catholique de Lyon,
10, place des Archives – 69002 Lyon, France.

and

Memberof the Institut de Mathématiques de Bourgogne,
9, avenue Alain Savary
BP 47870 – 21078 Dijon Cedex, France

Period covered:

- Université Catholique de Lyon: August 2022 – Today

I Scientific Work

- High energy black hole physics: semiclassical description of resonant scattering by black holes and applications to quasinormal modes, strong gravitational lensing, gravity/CFT correspondence.
- CFT on the photon sphere, SL(2,R) symmetry in local Rindler spacetime
- Quantum Field theory in curved spacetime: Hadamard renormalization of the energy-momentum tensor of a quantum field theory and problems related to the vacuum energy in General Relativity.
- Gauge theories of gravity.
- Weyl and Majorana spinor descriptions of spacetime and matter.

II Conferences and educational activities

II a Conferences and Other External Scientific Work

- 2 x 2h course on "*Complex angular momentum theory and use of Regge poles in semiclassical analysis of resonant scattering*", working group between Institut de Mathématiques de Bourgogne, Institut Carnot de Bourgogne and Laboratoire de Mathématiques de Besançon.

II b Work With Students

II c Diploma thesis supervision

II d Other Teaching Duties

II e. Work With Postdocs

III. Service activities *[activities carried out in collaboration with ICRANet (e.g. teaching activities, conferences etc...) and outside ICRANet (teaching activities in your university etc…]*

III a. Within ICRANet

III b. Outside ICRANet

Teaching activities at ESTBB – Graduate School of Engineering, Université Catholique de Lyon:

- For 1st year students: Thermodynamics, Electricity, Optics
- For 3rd year students: Heat and mass transfer

IV. Other

2022 List of preprints

- "*The overtone level spacing of a black hole quasinormal frequencies: a fingerprint of a local* $SL(2,R)$ *symmetry* ", B. Raffaelli, arXiv gr-qc/2212.05538
- "*A Weyl's law for black holes* ", J.L. Jaramillo, R.P. Macedo, O. Meneses-Rojas, B. Raffaelli, L. Al Sheikh, arXiv/gr-qc/2212.05570

2022 List of Publication

"*Hidden conformal symmetry on the black hole photon sphere",* B. Raffaelli, J. High Energ. Phys. **2022**, 125 (2022). https://doi.org/10.1007/JHEP03(2022)125

Sergio Torres

Position: Visiting Professor
Period covered: September – December, 2022

I Scientific Work

Analysis of Supernovae (SN) data (Pantheon+ compilation) aimed at detecting and characterizing potential space and red-shift anisotropies that can explain the Hubble tension problem (i.e. discrepancy between the Hubble constant values measured by SN and derived from Cosmic Microwave Background surveys).

II Conferences and educational activities

II a Conferences and Other External Scientific Work

II b Work With Students

Research collaboration with the Astronomy/Astrophysics group at the Andes University (Bogotá, Colombia)

II c Diploma thesis supervision

Currently co-directing research work by a PhD candidate at the National University (Bogotá, Colombia)

II d Other Teaching Duties

II e. Work With Postdocs

III. Service activities *[activities carried out in collaboration with ICRANet (e.g. teaching activities, conferences etc...) and outside ICRANet (teaching activities in your university etc…]*

III a. Within ICRANet

III b. Outside ICRANet

Astrophysics seminar, Andes University (Colombia)

IV. Other

2022 List of Publications

Spatial and red-shift anisotropies in the Hubble field derived from the Pantheon+ SN compilation (*in preparation*)

Ерназаров Турсынбек Измуханович

Male, 38 years, born on 12 August 1984

+7 (707) 9357885 — лучший вариант связи имэйл: ernazarovt@gmail.com
tursynbek2011@yandex.ru — preferred means of communication

Reside in: Almaty
Citizenship: Kazakhstan, work permit at: Kazakhstan
Not ready to relocate, ready for business trips

Desired position and salary

Учитель физики

300 000
KZT

Specializations:
— Teacher, educator
Employment: project work, work placement, part time, full time
Work schedule: rotation based work, remote working, flexible schedule, full day, shift schedule
Desired travel time to work: any

Work experience — 10 years 2 months

August 2017 — August 2020
3 years 1 month

СШ # 40 Алматинский область, Илийский район

Учитель физики

учитель физики

November 2018 — March 2020
1 year 5 months

ТОО Ustaz Professional Development Center

Almaty

Ментор

Помощь и консультация проведения уроков учителей на английском языке

August 2015 — September 2018
3 years 2 months

АО Өрлеу НЦП филиал Алматинский область

Almaty, www.orleu.edu
Educational Institutions
• School, Kindergarten

Старший преподаватель

проведение семинар-тренинги в области обновленной содержании, основы робототехники, и интегрированной обучении предмета и языка CLIL, подготовка методический план разработки курсов, семинаров, лекции для повышения квалификации учителей школы, подготовка годовой отчет

January 2015 — August 2015
8 months

ОШ №31 г Алматы

Almaty

учитель физики

Проводить уроки соответственно к госстандарту. Подготовка учащихся 11го к ЕНТ по физике

September 2013 — June 2014
10 months

АО Өрлеу НЦП филиал Алматинский область

Almaty, http://www.orleu-almobl.kz/kz/

Resume updated 18 January 2023 at 17:42

Старший преподаватель

подготовка методический план разработки курса, повышение квалификации учителей школы, подготовка отчет о курсах

January 2010 — September 2013
3 years 9 months

Общеобразовательная школа №142, г. Алматы
Almaty

Учитель физики

Преподавание физики

Education

Higher

2023

Казахский национальный университет имени аль-Фараби, Алматы
Физико-технический, Докторантура Физика

2014

Казахский национальный университет имени аль-Фараби, Алматы
Физико-технический, Магистр естественных наук (Ядерная физика)

2008

Казахский национальный университет имени аль-Фараби, Алматы
Физический, Гидроаэродинамика

Tests, examinations

2020

TOEFL ITP
Interpress KZ, 510

2016

IELTS
British council Kazakhstan, band 5.5, level B2

Key skills

Languages

Kazakh — Native
English — B2 — Upper Intermediate
Russian — C1 — Advanced

Skills

MS Access · Преподаватель · MS Office · Обучение · Google Chrome · Пользователь ПК · MS PowerPoint · MS Outlook · Internet · MS Internet Explorer · Работа в команде · Английский язык

Driving experience

Own car
Driver's license category B

Further information

About me

ответственный, целеустремленный, без вредных привычек, быстро обучаемый

International Relativistic Astrophysics Ph. D.

IRAP Ph. D. Erasmus Mundus Students

Daniele Gregoris

Position: Teaching and Research Personnel (Associate Professor) at Jiangsu University of Science and Technology
Period covered: 1st January 2022 – 31st December 2022

I Scientific Work

- I discovered that a certain combination of Weyl curvature scalars can be adopted as gravitational entropy density reproducing Hawking-Bekenstein entropy area law for every black hole regardless they are empty spacetimes or not (Phys.Rev.D 105 (2022) 10, 104017)
- I finalized the publication of a manuscript in which I studied the properties of various curvature quantities for a specific (1+2)-dimensional electrically charged black hole in massive gravity, also discussing the potential holographic applications of such results (International Journal of Modern Physics A (2022) 2250202)
- I finalized the publication of a manuscript in which I investigated the field theoretic formulation and the cosmological applicability of some dark energy models in the context of the Dirac-Born-Infeld framework (International Journal of Modern Physics A (2022) 2250211)
- I investigated the lack/occurrence of the Chandrasekhar mass limit for white dwarfs in some theories based on modified uncertainty principles (2202.13904 [gr-qc])
- I investigated the possibility of reproducing a cosmological LCDM dynamics at a background level characterized by jerk parameter j=1 without invoking a cosmological constant but adopting specific dark energy models interacting with dark matter (2208.04596 [gr-qc])

II Conferences and educational activities

II a Conferences and Other External Scientific Work

II b Work With Students
II c Diploma thesis supervision
II d Other Teaching Duties

- I taught the (online) courses of College Physics I (Mechanics and Thermodynamics) and College Physics II (Electromagnetism, Optics and Modern Physics), 40hrs each, in Spring and Fall terms respectively, for Jiangsu University of Science and Technology.
- I delivered two oral reports for master students at Jiangsu University of Science and Technology about current research trends in gravitational physics, black holes and cosmology.

II e. Work With Postdocs

III. Service activities *[activities carried out in collaboration with ICRANet (e.g. teaching activities, conferences etc...) and outside ICRANet (teaching activities in your university etc…]*

III a. Within ICRANet

- "Understanding Gravitational Entropy of Black Holes: A New Proposal via Curvature Invariants" at 6th Bego Rencontre
- "Some words on the role played by prof. Ruffini in my scientific growth" at Prof. Remo Ruffini Festschrift, a conference in celebration of Prof. Remo Ruffini 80th birthday

III b. Outside ICRANet

- "Understanding Gravitational Entropy of Black Holes: A New Proposal via Curvature Invariants" at 2022 Asia-Pacific School and Workshop on Gravitation and Cosmology 2022
- "Locating black hole horizons via curvature invariants: foundation and applications" at PseudoRiem22
- Poster presentations at GR23 conference: "Understanding Gravitational Entropy of Black Holes: A New Proposal via Curvature Invariants", "Thermodynamics of Shearing Massless Scalar Field Spacetimes is Inconsistent With the Weyl Curvature Hypothesis", and "On the Chandrasekhar Limit in Generalized Uncertainty Principles"

IV. Other

- I have been serving as Reviewer for the American Mathematical Society (AMS) @ MathSciNet (Mathematical Reviews)
- I won the 2021 outstanding reviewer award of the journal Classical and Quantum Gravity (IOP)
- I am a member of the national working group in Mathematical Physics GNFM (Gruppo nazionale fisica matematica) of Italian INDAM

2022 List of Publication

On journal with referees:

- Daniele Gregoris, Yen Chin Ong, "Understanding gravitational entropy of black holes: A new proposal via curvature invariants", Phys.Rev.D 105 (2022) 10, 104017
- Mahdis Ghodrati, Daniele Gregoris, "On the Curvature Invariants of the Massive Banados-Teitelboim-Zanelli Black Holes and Their Holographic Pictures", International Journal of Modern Physics A (2022) 2250202
- Muhsin Aljaf, Daniele Gregoris, Martiros Khurshudyan, "Assessing the foundation and applicability of some dark energy fluid models in the Dirac-Born-Infeld framework", International Journal of Modern Physics A (2022) 2250211

Preprints currently under review:

- Daniele Gregoris, Yen Chin Ong, "On the Chandrasekhar Limit in Generalized Uncertainty Principles", 2202.13904 [gr-qc]
- Saikat Chakraborty, Daniele Gregoris, B. Mishra, "On the uniqueness of ΛCDM-like evolution for homogeneous and isotropic cosmology in General Relativity", 2208.04596 [gr-qc]

CAPES

Administrative, Secretarial and Technical Staff

Adamo Cristina

E mail address	cristina.adamo@icranet.org
Telephone	+39 085 23054205
Fax	+39 085 4219252
Nationality	Italian
Date and place of birth	Vibo Valentia, 12 December 1972

Work experiences

Date	09 November 2009 → present
Name of employer	ICRANet - International Center for Relativistic Astrophysics Network
	Administrative employee
Main activities and responsibilities	Administrative office: accountancy, preparing reimbursement and rewards for scientific visitors, on – line payments, analysis of bank statements.

Date	04 March 2007 → 09 October 2009
Occupation or position held	Head Administrative Office
Main activities and responsibilities	Account and budget General Account. Active and passive billing cycles. Bank settlement. Treasury management and bank relations management. RI.BA. emission. Down-payment and invoice discount management. Payment and takings management. Independent management of the main civil-fiscal fulfilments with a particular attention to the periodical settling and vat statement. General account management. Assets management. Arrangement INTRA model. Arrangement of the financial year ending. Reclassification of the budget. Management of the accounting plan. Implementation of new instruments aiming at improving the efficiency of the administrative services. Administrative management of the staff: recruitment and selection interviews, drawing up of mandatory documents (matriculation and presences books), elaboration of timesheets. Management of clients and suppliers' order. Purchase and choice of suppliers to be qualified. Prices definition, deposit and shipment management.
Name and address of employer	Solaris Srl - Manoppello (PE) - Industrial Springs Production

Date	01 April 2001 - 28 January 2004
Occupation or position held	Responsible for marketing planning
Main activities and responsibilities	Evaluation of markets perspective. Coordination and reduction of commercial plans.

	Survey of the competition sale prices Coordination of marketing plans and commercial budgets
Name and address of employer	Merker SpA - Trucks production
Date	1997 - 2000
Title of qualification awarded	Trainee at a Business Consultant
Principal subjects / occupational skills covered	Ordinary and simplified account. Fiscal fulfilments. European balance. Income tax return. Consultant office Dott. Vincenzo Micozzi - Pescara

Date	1997 - 31/03/2001
Principal subjects / occupational skills covered	Responsible for Quality Insurance (ISO UNI EN 9002) Management Assistance Purchase management Administrative and fiscal fulfilments Definition of Marketing plans and monitoring of mix marketing elements
Name and address of employer	Solaris Srl - Industrial Springs production

Date	1997 - 1997
Occupation or position held	Stageur
Main activities and responsibilities	Implementation of check systems management
Name and address of employer	Software House Polymatic - Chieti Scalo

Education and training

Date	November 1991 - 16 July 1996
Title of qualification awarded	Degree in Economics – Economics of financial middleman
Name and type of organisation providing education and training	University L.U.I.S.S. - Guido Carli – Roma – Final marks: 105/110 – Thesis: "Tax incentive for the occupational development"

Dates	1986 - 1991
Title of qualification awarded	Secondary School Degree
Name and type of organisation providing education and training	Liceo Scientifico Leonardo Da Vinci - Pescara

Dates	1997 - 2000
Title of qualification awarded	Trainee at a Business Consultant
Main Sujects	Ordinary and simplified account. Fiscal fulfilments. European balance.

	Income tax return.
Name and type of organisation providing education and training	Consultant office Dott. Vincenzo Micozzi - Pescara
Date	1998 - 1998
Title of qualification awarded	Brief Master on Tax Law
Name and type of organisation providing education and training	University D'Annunzio - Pescara
Date	1998 - 1998
Title of qualification awarded	Postgraduate Course on " European Union: institutional, juridical and economic aspects"
Name and type of organisation providing education and training	European Commission and University of Lyon: corse in Paris and Lyon. Success on final exams.
Dates	1997 - 1997
Title of qualification awarded	Expert in enterprise management
Main Subjects	Purchase and logistics, financing, administration and control, marketing, production, budget, bringing out of new products
Name and type of organisation providing education and training	Regione Abruzzo - CIFAP
Dates	1997 - 1997
Title of qualification awarded	Evaluator of Quality systems
Main subjects	Expert according to the ISO regulations. Qualification for leading controls according to the UNI EN 9002 regulations.
Personal skills and competences	
Mother tongue	Italian
English	Indipendent User
French	Basic User

Social skills and competences	Communication Ability acquired during the working experiences Aptitude to learn, adaptable to new situations, different from the known ones. Ability to work under pressure. Good aptitude to work in multicultural environment thanks to the experiences spent abroad for education or personal reasons. Team spirit
Organisational skills and competences	Innate sense of organisation both in the working place and in the management of personal and familiar life. I am considered as a reference point by the production operators.
Technical skills and competences	Mastery in quality control processes in small enterprises (I was responsible for the qualily evaluation)
Computer skills and competences	Good Knowledge of Microsoft Office (Word, Excel e PowerPoint) Very good knowledge of Team System – Gamma, Mult program Basic knowledge of graphic application Good knowledge of Internet and web search engines.

Brandolini Gabriele

First name	Gabriele Attilio
Surname	Brandolini
E-mail address	gabriele.brandolini@icranet.org
Telephone	+39 085 23054203
Fax	+39 085 4219252
Nationality	Italian
Place and date of birth	Ortona (CH), 22 April 1986

Work experiences

Date	01 July 2013 - present
Name of employer	Soabit srl c/o ICRANet - International Center for Relativistic Astrophysics Network
Kind of Employment	System manager
Main activities and responsibilities	Network administrator – Web development

Date	2011 - 2011
Name of employer	Tipografia F.lli Brandolini snc
Kind of Employment	Graphic designer
Main activities and responsibilities	Network administrator Graphic design and layout texts

Date	2010-2010
Name of employer	Soabit srl c/o Univesità degli Studi “G. d'Annunzio” - Chieti

Kind of Employment	Help desk
Main activities and responsibilities	Web development: analysis and development of applications for managing stock of average complexity using PHP and MySQL technologies. Network administrator: support to the installation of network devices and updating of its firmware, to the segmentation of local area network (VLAN 802.1q) and support to troubleshooting activities. Network management: implementation of procedures for the historicizing of traffic flows (NetFlow / PMAcct) generated by the various firewalls on the various local networks.
Date	2009 - 2009
Name of employer	Tipografia F.lli Brandolini snc
Kind of Employment	Graphic designer
Main activities and responsibilities	Network administrator Graphic design and layout texts

Education

Date	September 2005 – 18 December 2012
Title of qualification awarded	Degree in Computer Science
Name and type of organisation providing education and training	University of L'Aquila – Final marks: 88/110 Thesis: "Analisi di prestazioni dell'instradamento in reti di sensori wireless"
Dates	September 2009 – July 2005
Title of qualification awarded	Secondary School Degree
Name and type of organisation providing education and training	Istituto Tecnico Industriale Statale "Luigi di Savoia" - Chieti

Personal skills and competences

Mother tongue	Italian
English	Basic User
Social skills and competences	Ability to work in a team matured in many situations where it was necessary collaboration between the figures, both in academia and in the business and sports. Good relational abilities thanks to the past work experience.
Organisational skills and competences	Sense of organization Good experience in project and team management

Computer skills and competences	Excellent knowledge of Operating Systems: Windows, Mac OS X and Linux. Excellent knowledge of Apple and Microsoft applications and Microsoft Office. Excellent knowledge, also, of various graphics and layout software. Excellent ability to use the Internet and manage applications that use them. Management of Local Area Networks LAN and WLAN and implementation of web applications. Excellent knowledge of HTML, PHP, CSS, Javascript, jQuery, MySQL. Good knowledge of C, C++, Java, VPN, Firewalling.
Other skills and competences	Considerable passion for the sport, followed and practiced.
Driving licence	Driving licence cat. A – B.

di Niccolo Cinzia

E mail address	cinzia.diniccolo@icranet.org
Telephone	+39 085 23054 219
Fax	+39 085 4219252
Nationality	Italian
Date and place of birth	Terlizzi, 23 May 1985

Work experiences

Date	01 August 2013 → present
Name of employer	ICRANet - International Center for Relativistic Astrophysics Network
Main activities and responsibilities	Secretariat Office

Date	12 June → 16 July 2013
Occupation or position held	ISTAO – Project Work
Main activities and responsibilities	Report And Presentation Of The Results Loccioni Group – Our Presence In The World: Germany, USA, China; Country Analysis: Turkey. Results, Report And Final Slide Presentation To Loccioni Managers
Name and address of employer	Loccioni Group, via Fiume 16, 60030 Angeli di Rosora, Ancona Phone +39.0731.8161 | Fax +39.0731.814.700

Date	From October 2012
Occupation or position held	Conference interpreting and translations.
Name and address of employer	OS-Card Srl – Bologna

Date	May 2012 → September 2012
Occupation or position held	Junior Export Manager
Main activities and responsibilities	Brazil country analysis. Brazilian Portuguese website translation. Company profile in Brazilian Portuguese language.
Name and address of employer	Marzoarreda – Novoli (LE)

Date	September 2011 → January 2013
Occupation or position held	Stageur
Main activities and responsibilities	Legal Office – Notary services Drafting of documents concerning: general/special power of attorney, will and testament of citizens living abroad, public acts, certificates of

	authentications, self-certifications and official certificates that can be replaced by self-certifications.
Name and address of employer	Italian General Consulate in Brazil – São Paulo Aveinda Paulista, 1963; CEP 01311-300 São Paulo (SP)
Date	October 2011 → January 2012
Occupation or position held	Italian teacher
Main activities and responsibilities	Italian teacher for native Brazilian students. Private lessons and classes. Conference interpreter for 30th São Paulo *Venice Architecture Biennial* 2012
Name and address of employer	Italian Institute of Culture in Brazil – São Paulo Avenida Higienópolis, 436; CEP 01238-000, São Paulo (SP)
Date	January → July 2011
Occupation or position held	Internship
Main activities	Editing, proofreading.
Name and address of employer	Edizioni dell'Urogallo – Literature from Portuguese-speaking countries

Education and training

Date	February → July 2013
Title of qualification awarded	Postgraduate master course in International Management
Name and type of organisation providing education and training	ISTAO – Istituto Adriano Olivetti di Studi per la gestione dell'economia e delle aziende The Masters Course in International Management prepares highly specialized students in the field of international business and trade. Organized in collaboration with ICE (Governamental Agency for the internationalization of Italian companies), Confindustria Marche (Italian Employers' federation) and the Government of the Marche Region, the Master represents one of the most important and valuable programs for new graduates approaching the business world focused on the themes of internationalization: macroeconomics and global markets, enterprise organization, emerging countries, strategies and decision-making skills, contracts, rules, techniques.
Date	May 2012
Title of qualification awarded	CEDILS Certificate Certified teacher for Italian as foreign language
Name and type of organisation providing education and training	Ca' Foscari – University of Venice

Date	November 2008 → 11 July 2011
Title of qualification awarded	Master degree in *Languages for international communication – Portugues EU/BR and Spanish*
Name and type of organisation providing education and training	Univerità degli Studi di Perugia Final marks: 110/110 cum laude Thesis: "Way to Europe. Portugal and the European integration process"

Date	November – December 2010
Title of qualification awarded	Brief Master on Europroject Management 2007-2013
Name and type of organisation providing education and training	Introduction to European Union: institutional, juridical and economic aspects. Training courses: full lifecycle of an EC funded project: proposal preparation and submission, evaluation, negotiation, technical and financial project management, reporting, technical reviews and post-project audits.

Date	November 2004 → 9 November 2008
Title of qualification awarded	Degree in *Linguistic and Cultural Mediation Sciences – Portugues EU/BR and Spanish*
Name and type of organisation providing education and training	Univerità degli Studi di Perugia Final marks: 110/110 cum laude Thesis: Modern poetry in Portugal.

Dates	1999 - 2004
Title of qualification awarded	Secondary School Degree
Name and type of organisation providing education and training	Liceo Linguistico Carlo Troya – Andria (BT)

Personal skills and competences

Mother tongue	Italian
Portuguese	Second language
Spanish	Very good
English	Good
French	Basic User

Social skills and competences	Good ability to adapt to multicultural environment, gained through my experience of studying and travelling abroad (Brazil and Europe); Very good aptitude in teamwork (working within collective projects in the postgraduate course and in academia); Ability to work under pressure.

Organisational skills and competences	Very good sense of organisation and time planning abilities; Self rigorousness and self discipline; Good analytical and problem-solving abilities gained during all study years and especially during internship at Italian General Consulate in Brazil (the Vice-Consul signed my letter of recommendation)
Computer skills and competences	Very good command of Microsoft Office (Word, Excel e PowerPoint); Very good knowledge of Internet and web search engines; Knowledge of graphic application.

Latorre Silvia

PERSONAL INFORMATION

Place and date of birth	Chieti, 23/09/1982
Nationality	Italian
E- mail	silvia.latorre@icranet.org
Phone	085 – 23054223
Fax	085 - 4219252

WORK EXPERIENCES

• Date	12/02/2008 – present
• Name of employer	ICRANet
• Firm or Sector	International Center for Relativistic Astrophysics Network
• Kind of Employment	Administrative employee
• Main Tasks	Managing the relationship with suppliers, controlling invoices, calculating reimbursement and rewards for our scientific visitors, preparing orders for the bank, executing and verifying on-line payments, meeting our bank referents for particular payment operations, cash holding, using ICRANet cost-accounting system.

• Date	01/12/2006 – 20/01/2008
• Name of employer	DelVerde Industrie Alimentari S.p.A.
• Firm or Sector	Pasta Factory
• Kind of Employment	Trainee
• Main Tasks	Study and analysis of annual financial statements of ten competitor pasta factories for the financial years from 2002 to 2006, as well as reclassification of balance sheets and profit and loss accounts and calculation of the main income and financial indexes. Analysis of export strategies of DelVerde and other Italian pasta factories.

EDUCATION

• Date	11/2005 – 12/2007
• Institution	Università degli Studi "G. D'Annunzio" Pescara
• Main Subjects	Marketing, commercial law, innovation management and economics, business statistics, quality technique and theory
• Achieved Qualification	Degree in Economics and Administration of the enterprises. Final thesis in analysis of balance sheet: "*La leva finanziaria e la leva operative nel settore pastario*" (supervisor Prof. Michele A. Rea)
• Mark	110/110 *cum laude*

• Date	09/2001 – 11/2005
• Institution	Università degli Studi "G. D'Annunzio" Pescara
• Main Subjects	Financial Mathematics, bank technique, business economics, accountancy, microeconomics, macroeconomics, private and public law, work law, analysis of balance sheet, business strategy and politics
• Achieved Qualification	Business Economics Degree. Final thesis in business strategy and politics: "*Gli strumenti di analisi strategica: l'analisi SWOT"* (supervisor Prof. Michele A. Rea)
• Mark	106/110

• Date	09/1996 – 07/2001
• Institution	Secondary School focusing on sciences- Liceo Ginnasio Statale "Publio Virgilio Marone" Vico del Gargano (FG)
• Main Subjects	Mathematics analysis, Italian language and literature, Latin language and literature, Chemistry, Physics
• Achieved Qualification	Scientific school-leaving certificate
• Mark	100/100

FOREIGN LANGUAGES	
MOTHER-TONGUE	ITALIAN
OTHER LANGUAGES	ENGLISH (GOOD) – FRENCH (ELEMENTARY)
RELATIONAL ABILITIES	Good relational abilities thanks to the past work experience at DelVerde and to the present experience at ICRANet. Self-reliant. Good listener.
ORGANIZING COMPETENCES	Good organizing abilities acquired handling the big amount of data at DelVerde and working at ICRANet, where they are essential for managing the large number of guests, mainly during the meetings.
TECHNICAL SKILLS	Computers competences: Windows. Softwares: Word, Excel, Power Point. Very good use of Internet and e-mail accounts. Good use of cost-accounting system HELPAZI and bank system BNL Businessway. Elementary knowledge of HTML e CSS programs for websites. Knowledge of "TOP VALUE" program for financial diagnosis and corporate planning.
ARTISTIC SKILLS	Piano classes attended for 8 years. sol-fa Diploma.
DRIVING LICENCE	Driving licence cat. B
FURTHER INFORMATION	I like travelling, cooking, cinema, listening music, playing the piano. I have a determined, dynamic and flexible personality. I like staying and working with people.

INFORMAZIONI PERSONALI

Elisabetta Natale

Via Cesare Battisti 12, 65029, Torre de' Passeri (PE)

Data di nascita 07/11/1991 | Nazionalità Italiana

ESPERIENZA PROFESSIONALE

Da 01/2018 →

ICRANet Secretariat

International Center for Relativistic Astrophysics Network (ICRANet), Pescara

Da 09/2017 a 12/2017 →

Europe and North America Desk Assistant

UNESCO, Parigi

Relazione con Stati membri e Partner istituzionali (MSP), settore Relazioni estere e Public information and communication (ERI)

Da 03/2017 a 09/2017

HR & Project Assistant Intern

INTERSOS, Roma

Da 08/2016 a 02/2017

Intern – Delegazione dell'Unione Europrea presso Agenzie delle Nazioni Unite (FAO, IFAD, WFP), Santa Sede, Ordine di Malta e Repubblica di San Marino

EEAS (European External Action Service), Roma

- Sezione rapporti Unione Europea – ONU, in particolare responsabile delle relazioni UE - FAO
- Partecipazione ai principali meeting FAO in qualità di delegata UE
- Organizzazione e coordinamento dei meeting tra i 28 stati membri, analisi e preparazione di documenti e statement per i meeting
- Assistente sezione stampa e comunicazione, cura del sito web della Delegazione
- Stesura di comunicati stampa e report per gli uffici UE a Bruxelles, in particolare per la Commissione Europea e le DG pertinenti

Da 06/2016 a 08/2016

Marketing assistant

General Communication Srl Bologna, Bologna

- Ricerca e fidelizzazione di nuovi clienti per conto di ONGs e INGOs (AMNESTY INTERNATIONAL, UNICEF, AISM Onlus)
- Project Assistant

06/2016

Exit poll e proiezioni elettorali per elezioni amministrative Bologna 2016

IPR marketing per conto di RAI radiotelevisione italiana spa, Bologna

- Raccolta dati, monitoraggio, analisi e statistiche per proiezioni elettorali
- Trasmissione dei dati a RAI radiotelevisione italiana per immediata diffusione in tempo reale

04/2016

Scrutatrice per il referendum popolare italiano del 17 aprile 2016

Comune di Torre de' Passeri (PE)

Da 09/2015 a 11/2015

Administrative assistant Intern

Centro linguistico d'ateneo (CLA) Ravenna - Alma Mater Studiorum università di Bologna

- Attività di front/ back office, traduttrice per gli studenti stranieri in arrivo
- Preparazione e correzione dei test di livello linguistici (inglese, francese, tedesco e spagnolo)
- Assistente all'insegnamento per il progetto "ALMA ENGLISH" e per le certificazioni linguistiche
- Assistente all'insegnamento della lingua italiana per studenti stranieri
- Assistente sezione comunicazione

Da 11/2013 a 04/2014

Administrative assistant Intern

Ufficio orientamento e career service Forlì, Alma Mater Studiorum università di Bologna,Campus di Forlì (FC)

- Creazione e aggiornamento dei database
- Attività di front/ back office
- Colloqui con gli studenti per l'orientamento in entrata ed in uscita
- Promozione dell'attività formativa dell' Alma Mater Studiorum
- Assistente sezione comunicazione

Da 20/03/2014

Co-founder associazione IAPSS sezione di Forlì

IAPSS (International Association for Political Science Students), Forlì (FC)

- Cofondatrice dell'associazione
- Presentazione di IAPSS a istituzioni accademiche e amministrative (Alma Mater Studiorum - UniBo, comune di Forlí,…)
- Organizzazione di conferenze a livello locale / nazionale e internazionale
- Organizzazione di conferenze, eventi, round-tables, workshops, viaggi studio e di approfondimento
- Assistente sezione stampa e comunicazione

03/ 2010

Traduttrice DE> IT del materiale informativo relativo al XXXVII Congresso nazionale su "KANT E L'AUFKLÄRUNG"

Società filosofica italiana, Sulmona (L'AQ)

Traduzione di discorsi, flyer, documenti e materiale informativo relativo al XXXVII Congresso nazionale della "KANT E L'AUFKLÄRUNG"

ISTRUZIONE E FORMAZIONE

02/ 2017

Workshop in International Journalism and Communication

The Post Internazionale and Limes, Roma (RM)

Panelists: Enrico Mentana, Curzio Maltese, Marco Damilano, Amedeo Ricucci, Emiliano Fittipardi, Stefano Mentana, Giulio Gambino, Alessio Romenzi, Francesca Mannocchi, Nancy Porsia, Eva Giovannini, Sabika Shaha Povia, Laura Silvia Battaglia.

Da 04/2016 a 08/2016

Executive master in International Business Development (percorso Export management e internazionalizzazione d'impresa)

Sida group Management Academy, Bologna (BO)

Principali tematiche trattate: Strategie per l'internazionalizzazione d'impresa; marketing analitico e operativo; web marketing; social media marketing; project management; supply chain management e disciplina doganale; bilancio aziendale; controllo di gestione, pianificazione e strategia aziendale; business plan e finanziamenti; fiscalità e contrattualistica internazionale; tutela di marchi e brevetti; pagamenti internazionali e gestione del credito; analisi di mercato.

06/2016

Diploma congiunto NATO Allied commander transformation-UNIBO

NATO summer workshop and NATO Model event, Forlì (FC)

"NATO and Security Challenges: Institutions and Policies, Key Trends and Best Practices"

Ruolo ricoperto: giornalista NATO

Principali tematiche: Changing balances and the role of NATO in international politics: current challenges and

future opportunities; NATO in the future; Cooperative Security: Nato Partnerships in Perspective; Collective Defence and Crisis Management – Art.5 and Beyond; NATO and Other Actors in the New Security Environment: NATO and the UN'; NATO and the EU; Cybersecurity: Myth and Reality; The changing global security environment: Exploring new challenges and opportunities.

Da 09/2014 a 06/2015

Erasmus +

Institut d'études politiques (SCIENCES PO), Lione, Francia

Specializzazione nel percorso Affari internazionali e commerciali

Principali tematiche: Politique commerciale européenne et comparée; Pratiques du commerce international; Médias, pouvoir et construction du consensus politique ; Communication politique et publique; Théorie et pratiques de la diplomatie; Violence internationale et gestion des conflits; Politiques publiques; Histoire internationale.

Da 09/2013 a 03/2016

Laurea magistrale in scienze internazionali e diplomatiche
Curriculum: politica e sicurezza internazionale

Votazione: 110 con lode /110

Alma Mater Studiorum università di Bologna, Campus di Forlì

Redazione della tesi sperimentale in lingua francese, dal titolo «*L'outrecuidance «à la française»: paradoxes stratégiques et ambigüités historiques de la politique européenne et de défense de la France* ».

Attività extracurriculari:

- Co-fondatrice dell'associazione IAPSS (International Association For Political Science Students)
- 07/05/2014: SEMINAR "The Ukrainian Warfare: historical path and future implications to the International System" (organizzatrice)
- 11/04/2014: Incontro "Percorsi verso le carriere internazionali-da scienze politche al mondo globale", Campus di Forlì
- 06/03/2014: simulazione del Consiglio dell'UE nella formazione Occupazione e Affari Sociali (Forlì) – Ruolo: Germania

Da 09/2010 a 07/2013

Laurea in scienze internazionali e diplomatiche

Alma Mater Studiorum università di Bologna, Campus di Forlì

Attività extracurriculari:

- 05/2013: NATO Model Event (Forlì) - Ruolo: Ambasciatrice della Lituania
- 10/05/2013: "Croatian Membership in the New Europe", conferenza con l'Ambasciatore croato in Italia, Damir Grubiša, Punto Europa (Forlì)
- 12/04/2013: incontro ISPI "GLOBE, orientamento alle carriere internazionali", Campus di Forlì
- 07/03/2013: "L'Emilia nel cuore dell'Europa. Emigrazione in Belgio. Storia e memorie di molte partenze e di qualche ritorno", presentazione del libro del professor Lorenzo Bertuccelli, Punto Europa (Forlì)
- 02/2013: Prague Model United Nations Conference (Praga) - Ruolo: delegata della Mongolia nel Consiglio economico sociale Onu (ECOSOC)
- 13/03/2012: Cerimonia di consegna del Sigillum Magnum a Jean-Claude Juncker, Romano Prodi e Helmut Kohl, Bologna

Da 09/2005 a 07/2010

Maturità linguistica

Liceo linguistico Gian Battista Vico, Sulmona (L'AQ)

Lingue di studio: inglese, francese e tedesco

Scambi culturali:

- 10/2008: scambio culturale in Germania, liceo "Kurfurst Maximilian Gymnasium" Burghausen (Salzach)
- 03/2008: scambio culturale in Francia, liceo "Jean Zay", Jarny (Lorraine)

COMPETENZE PERSONALI

Lingua madre: Italiano

Altre lingue

	COMPRENSIONE		PARLATO		PRODUZIONE SCRITTA
	Ascolto	Lettura	Interazione	Produzione orale	
Inglese	C1/C2	C1/C2	C1/C2	C1/C2	C1/C2
Francese	C1/C2	C1/C2	C1/C2	C1/C2	C1/C2
Tedesco	B1/B2	B1/B2	B1/B2	B1/B2	B1/B2
Russo	B1	B1	B1	B1	B1
Spagnolo	A2	A2	A2	A2	A2

Competenza digitale

AUTOVALUTAZIONE				
Elaborazione delle informazioni	Comunicazione	Creazione di Contenuti	Sicurezza	Risoluzione di problemi
Utente intermedio	Utente intermedio	Utente intermedio	Utente intermedio	Utente intermedio

Altre competenze

- Corsi CRI (Pioniere e Volontaria del soccorso della Croce Rossa Italiana, corso BLSD e abilitazione all'utilizzo del defibrillatore semi automatico esterno)
- Attività sportiva agonistica (Federazione italiana Pentathlon moderno_ società sportiva Valpescara srl)
- Educatrice in Azione Cattolica e accompagnatrice/organizzatrice di campi estivi parrocchiali
- Aiuto nel doposcuola parrocchiale e ripetizioni private (saltuariamente).
- Conoscenza del sistema di scrittura e di lettura Braille

Patente di guida

B

ULTERIORI INFORMAZIONI

Progetti

GENERAZIONE ITALIA - Progetto di formazione istituzionale e innovazione legislativa organizzato dalla FONDAZIONE CULTURA DEMOCRATICA e dal GOVERNO ITALIANO
Roma, 04 -08/ 2017

Riconoscimenti e premi

- Luglio 2015: attestato di merito per studenti meritevoli, Alma Mater Studiorum Università di Bologna
- 11/12/2010: Borsa di studio per conseguimento del diploma con esito eccellente, elargita dal "Centro studi Mac 47, Carmine Mastrogiuseppe no profit", Sulmona (L'AQ)
- 08/2010: Segnalazione da parte del Dirigente Scolastico del liceo G.B.Vico (Sulmona-L'AQ) per rappresentare la scuola e partecipare al Premio "Alfieri del Lavoro" e alle prove di ammissione nel Collegio Universitario Lamaro Pozzani di Roma, realizzate dalla Federazione Nazionale dei Cavalieri del Lavoro
- 05/2001: Riconoscimento ed elezione alla carica di Consigliere nel Consiglio comunale dei bambini di Torre de' Passeri (PE)

Certificazioni

- Luglio 2016: CORSO DI FORMAZIONE GENERALE PER I LAVORATORI secondo il D.Lgs. 81/2008 e l'accordo Stato Regioni del 21/12/2011

Autorizzo il trattamento dei miei dati personali ai sensi del Decreto Legislativo 30 giugno 2003, n. 196 "Codice in materia di protezione dei dati personali".

Pescara, 10/11/2021

Elisabetta Natale

Yasmina Di Domizio

ESPERIENZE LAVORATIVE

10/2021 – presente **Segretaria in ICRANet**

09/2020 – 10/2021 **Coordinatrice delle attività didattiche, corsi, seminari, convegni, eventi di formazione online** presso Assform.
Attività di back office, gestione casella di posta, gestione dei rapporti B2C e con i docenti, supporto nell'utilizzo della piattaforma e-learning, follow-up degli eventi di formazione online. Predisposizione reportistica delle presenze e del materiale didattico/test/verifiche. Attivazione e governo delle attività didattiche. Promozione dei corsi. Redazione di testi digitali, elaborazione di video.

02/2020 – 06/2021 **Insegnante di inglese**

09/2018 – 01/2019 **Assistente** nei laboratori multimediali del Centro Linguistico Ateneo dell'Università di Bologna. Assistenza e sorveglianza durante gli esami e le idoneità linguistiche, registrazione degli utenti, controllo e gestione degli accessi nei laboratori e supporto informativo.

FORMAZIONE

08/2020 – 02/2021 Master in *Global Marketing, Comunicazione e Made in Italy*, Centro Studi Comunicare l'Impresa. Moduli didattici: Incoterms 2020 e i pagamenti internazionali; La circolazione internazionale delle merci; Principi di Marketing; Internazionalizzazione e Marketing; Comunicazione e Social media; E-commerce.

09/2017 – 03/2020 Laurea magistrale in Lingue moderne per la comunicazione e la cooperazione internazionale (*Language, Society and Communication*) presso l'Università di Bologna conseguita con votazione di 110/100 e lode. Tesi in traduzione inglese → *Translating Popular Science: The Cases of National Geographic and Scientific American.*

09/2013 – 03/2017 Laurea triennale in *Mediazione Linguistica e Comunicazione Interculturale* presso l'Università di Chieti-Pescara conseguita con votazione di 110/100 e lode.

07/2013 Diploma di maturità conseguito presso il liceo linguistico GB Vico di Sulmona (AQ) con votazione 100.

STUDI ED ESPERIENZE ALL'ESTERO

04/2017 – 06/2017 Corso di francese B2 presso il centro studi Inflexyon a Lione.

04/2017 – 06/2017 Adesione al progetto interculturale *Au Pair World* presso una famiglia franco-messicana a Lione.

09/2015 – 07/2016 Erasmus presso l'Università di Warwick (Gran Bretagna). Frequenza di corsi di traduzione EN<>IT, EN<>ES, Letteratura inglese.

LINGUE

	Listening	Speaking	Reading	Writing
Inglese (IELTS certificate)	C2	C1	C2	C1
Spagnolo	C2	C1	C2	C1
Francese	B2	B2	B2	B1

ABILITÀ INFORMATICHE

- Buona conoscenza del sistema operativo Windows e degli applicativi Office (Word, Excel, Power Point). Ottima conoscenza di programmi di posta elettronica (Outlook, Gmail, Thunderbird). Conoscenza base di OBS Studio, di video editing e di strumenti di progettazione grafica (Canva).