

## **Enclosure 8**



# CAPES | ICRANet Program

A TEACHING, RESEARCH AND OUTREACH PROGRAM IN RELATIVISTIC ASTROPHYSICS AND COSMOLOGY 2013–2018

The **CAPES | ICRANet** Program on Relativistic Astrophysics and Cosmology promotes the Collaboration between scientists from Asia, Europe and USA with Brazilian scientists with five major actions:

Fellowships for Brazilian graduate students in the IRAP-PhD program.

Senior scientists from Asia, Europe and USA visiting Brazil for up to 3 months per year for three years within the “Ciência sem fronteiras” program.

Senior Brazilian scientists visiting ICRANet seats in Asia, Europe and USA for up to 5 months in a year.

Postdoctoral Fellowships for International candidates in ICRANet seats, Scientific Institutions associated to ICRANet, and Institutions with scientists associated to ICRANet, in Asia, Brazil, Europe and USA.

Organization of workshops and outreach programs.



ENEA



FOR THE DETAILS AND APPLICATIONS OF THE ONGOING PROGRAMS SEE

[www.icranet.org](http://www.icranet.org) | [www.capes.gov.br/cooperacao-internacional/italia/capes-icranet](http://www.capes.gov.br/cooperacao-internacional/italia/capes-icranet)

e-mail: [capes-icranet@icranet.org](mailto:capes-icranet@icranet.org)





# FAPERJ | ICRANet Program

A TEACHING, RESEARCH AND OUTREACH PROGRAM IN RELATIVISTIC ASTROPHYSICS AND COSMOLOGY 2013–2018

The **FAPERJ | ICRANet** Program on Relativistic Astrophysics and Cosmology promotes the Collaboration between scientists from Asia, Europe and USA with scientists from the State of Rio de Janeiro with five major actions:

1 Fellowships for graduate students from the State of Rio de Janeiro in the IRAP-PhD program.

2 Senior scientists from Asia, Europe and USA visiting scientific institutions in the State of Rio de Janeiro.

3 Senior scientists from the State of Rio de Janeiro visiting ICRANet seats in Asia, Europe and USA.

4 Postdoctoral Fellowships for International candidates in ICRANet seats, Scientific Institutions associated to ICRANet, and Institutions with scientists associated to ICRANet in Asia, Europe, State of Rio de Janeiro and USA.

5 Organization of workshops and outreach programs.

IMAGES CREDITS (1,2) NASA/ESA/HUBBLE HERITAGE TEAM; (3) NASA, ESA, STSC, J. HESTER AND P. SCOWEN (ARIZONA STATE UNIVERSITY); (4) SUBARU TELESCOPE (NAOJ) & DSS; (5) NASA/ MARTIN PUGH

GRAPHIC DESIGN WWW.AMPERDESIGN.COM.BR



ENEA



FOR THE DETAILS AND APPLICATIONS OF THE ONGOING PROGRAMS SEE

[www.icranet.org](http://www.icranet.org) | [www.faperj.br](http://www.faperj.br)

**e-mail:** [faperj-icranet@icranet.org](mailto:faperj-icranet@icranet.org)



*Scientific Publications*  
*of*  
*Brazilian Students, post-doc and senior visitors*  
-  
*CAPES Program, Erasmus Mundus Program*  
*and IRAP PhD Program*





## **PhD Students**

Brandt Carlos Henrique  
Carvalho Guimarães Gabriel  
Lobo Pereira Iarley

## **Sênior Visitors to Brasil**

Aharonian Felix  
Bisnovatyi-Kogan Gennady  
Giommi Paolo  
Mathews Grant  
Rueda Hernández Jorge Armando

## **Sabbatical Professors to Europe/Asia**

Luchini Martins Gabriel  
Mosquera Cuesta Herman Jr  
Picanço Negreiros Rodrigo  
Rangel Lemos Luis Juracy  
Zen Vasconcellos César Augusto

## **Postdoc in Europe/Asia**

Bartosch Caminha Gabriel  
Batista dos Santos Grasielle  
Camargo Rodrigues de Lima Rafael  
Goulart Coelho Jaziel  
Machado de Oliverira Fraga Bernardo  
Silva Bittencourt Eduardo Henrique

## **Postdoc in Brasil**

Belvedere Riccardo  
Martins de Carvalho Sheyse  
Penacchioni Ana Virginia  
Siutsou Ivan  
Zaninoni Elena

## **Brazilian IRAP PhD and Erasmus Mundus Students**

De Barros Gustavo  
Gomes de Oliveira Fernanda  
Maiolino Tais  
Pereira Jonas Pedro  
Sversut Arsioli Bruno



# Carlos Henrique Brandt

## *Current position:*

IRAP Ph.D. Student (Capes-ICRANet Fellow)  
Sapienza University of Rome  
ICRANet  
Agenzia Spaziale Italiana – ASI



## *Outcome Institution:*

Laboratório Nacional de Computação Científica  
Universidade Federal do Rio Grande do Sul – UFRGS

## *Scientific Work*

Me and my supervisor, Paolo Giommi, together with the team of researchers and technicians at ASDC (ASI Science Data Center) have been carrying a set of evaluations of data retrieving and analysis tools currently in use at ASDC. The aim is not only to learn from, but also to contribute back to the current infrastructure in use at ASDC, and in this process implement the next generation tools to be used in Brazil, at BSDC (Brazilian Science Data Center). During the past months, I have implemented an alternative system for data retrieval to be used on ASDC's tools, which searches on the Internet for catalogued data matching a particular set of parameters given by the user. This paradigm for data retrieval is part of a set of new ideas on software infrastructure to better use and publish astronomical data by researchers all over the world. This ideas are grouped under the name Virtual Observatory (hereafter VO), and the workforce developing them is the International Virtual Observatory Alliance (IVOA). Currently I am working on increasing the performance of a software used for Swift data reduction. Swift is a satellite to observe Gamma-Ray Burst events in different wavebands. The code we are currently improving process x-ray data collected by the satellite and depending on the amount of data can spent a few minutes processing it. We are studying the algorithm to modify it so that highly parallel devices (GPU, Intel Phi) can be used instead of the currently serial design. Succeeding on that, ASDC and BSDC will be able to offer live data analysis, at the depth of data reduction level, to their users.

## *Publications:*

- ) C. H. Brandt, P. Giommi, et al.; "Search for possible association between supernova and GRBs in archival data"; in preparation.
- ) C. H. Brandt, P. Giommi, F. Moscato, R. Primavera; "Development of innovative software for the handling and retrieval of data from large archives: application to the Brazilian Science Data Center (BSDC)"; in preparation.

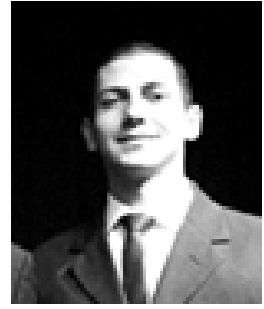
## *Meetings, conferences, seminars, schools:*

- ) Madrid, Spain – IVOA meeting, 19 - 23 May 2014 (€ 567,50 – fee covered by ICRANet)
- ) Yerevan, Armenia - 1<sup>st</sup> Scientific ICRANet Meeting in Armenia: Black Holes: the largest energy sources in the Universe - 30 June - 4 July 2014 (€ 848,06; – fee covered by ICRANet)
- ) IRAP Ph.D. Erasmus Mundus Workshop - Supernovae, Gamma-ray bursts and the induced gravitational collapse May 11-16, 2014 - Les Houches (France) (€ 350 – fee covered by ICRANet)





# Gabriel Guimarães Carvalho



## *Current Position:*

IRAP Ph.D. Student (Capes-ICRANet Fellow)  
Sapienza University of Rome  
ICRANet

## *Outcome Institution:*

Universidade Federal de Pernambuco – UFPE

## *Scientific Work:*

Classical General Relativity, Properties of Exact Solutions of Einstein and Einstein Equations, Geodesics, Ricci Flows, Perturbations in General Relativity.

## *Publications:*

-) D. Bini and G. Carvalho; “Charged scalar field perturbations in a Reissner-Nordström spacetime”; in preparation.

## *Meetings, conferences, seminars, schools:*

- ) Third Bego Rencontres - IRAP Ph.D. Erasmus Mundus school - September 8<sup>th</sup> -19<sup>th</sup> 2014 Nice;
- ) IRAP Ph.D. Erasmus Mundus School - February 2014 Nice Winter School- February, 23 - March, 2 – 2014 (€ 140,25 – fee covered by ICRANet);
- ) Zeldovich-100 Meeting, March 10-14, 2014, Minsk, Belarus - Subatomic particles, Nucleons, Atoms, Universe: Processes and Structure - International conference in honor of Ya. B. Zeldovich 100<sup>th</sup> Anniversary (€ 541,67 – fee covered by ICRANet);
- ) Yerevan, Armenia - 1<sup>st</sup> Scientific ICRANet Meeting in Armenia: Black Holes: the largest energy sources in the Universe - 30 June - 4 July 2014 – (€ 652,33 – fee covered by ICRANet);
- ) Third Bego Rencontres - IRAP Ph.D. Erasmus Mundus school - September 8<sup>th</sup> -19<sup>th</sup> 2014;
- ) IRAP Ph.D. Erasmus Mundus Workshop - Supernovae, Gamma-ray bursts and the induced gravitational collapse May 11-16, 2014 - Les Houches (France) (€ 350 – fee covered by ICRANet)



# Iarley Lobo Pereira



## *Current position:*

IRAP Ph.D. Student (Capes-ICRANet Fellow)  
Sapienza University of Rome  
ICRANet

## *Outcome Institution:*

Universidade Federal da Paraíba – UFPB

## *Scientific Work:*

Quantum Gravity; Doubly Special Relativity; Relative Locality; Curved Momentum Space.

## *Publications:*

- ) G. Amelino-Camelia and I. P. Lobo; “K-anti de Sitter momentum-space”; to be submitted.
- ) I. P. Lobo and C. Romero; “Singularities in Weyl Manifolds”; submitted.
- ) I. P. Lobo and C. Romero; “Geometrization of frame transformations in scalar-tensor theories of gravity”; in preparation.

## *Meetings, conferences, seminars, schools:*

- ) Third Bego Rencontres - IRAP Ph.D. Erasmus Mundus school - September 8<sup>th</sup>-19<sup>th</sup> 2014;
- ) Yerevan, Armenia - 1<sup>st</sup> Scientific ICRANet Meeting in Armenia: Black Holes: the largest energy sources in the Universe - 30 June - 4 July 2014 – (€585,27 – fee covered by ICRANet);
- ) IRAP Ph.D. Erasmus Mundus Workshop - Supernovae, Gamma-ray bursts and the induced gravitational collapse May 11-16, 2014 - Les Houches (France) (€ 350 – fee covered by ICRANet)





# Felix Aharonian



## *Current Position:*

Head of High Energy Astrophysics Theory Group,  
Max-Planck-Institut für Kernphysik, Heidelberg, Germany

Professor of the Cosmic School of the Dublin Institute for Advanced Studies (DIAS)

Director of the Center for Astroparticle Physics and Astrophysics at DIAS, Dublin, Ireland

Capes-ICRANet Senior Visiting Professor to Brazil

First visit: From: December 15, 2013.

To: January, 15 2014

## *Scientific Work:*

High Energy Astrophysics, Astroparticle Physics, Cosmology

## *Publications:*

approximately 450 papers in peer-reviewed journals,

citations: more than 22800 citations,

h-index: 83

## *Meetings, conferences, seminars, schools:*

- ) Member (representative of ESA) of the Science Working Group of the JAXA-NASA;
- ) X-ray mission ASTRO-H (X-ray Astronomy) Member of the H.E.S.S. Collaboration Board (gamma-ray astronomy)
- ) Member of the KM3NeT Consortium Board (neutrino astronomy);
- ) Vice-President of the IAU Division D "High Energy Phenomena and Fundamental Physics"
- ) Co-director of LEA - European Associated Laboratory on High Energy Astrophysics jointly supported by CNRS (France) and MPG (Germany);
- ) Adjunct Professor, School of Physics, University College Dublin (USD);
- ) Adjunct Professor and member of the International Center for Relativistic Astrophysics, Rome/Pescara, Italy;
- ) Member ("Supervisor") of the Heidelberg Graduate School of Fundamental Physics;
- ) Member of the International Review Board of the Helmholtz Association on Astroparticle Physics;
- ) Chair of the International Advisory Council of the Institute of Sciences of the Cosmos at the University of Barcelona;
- ) Editor of the International Journal of Modern Physics D;
- ) 2014: Scientific visit to ICRANet from August 15<sup>th</sup> to August 18<sup>th</sup> amount paid as a per diem € 1.490,00 and € 255,00 as a contribution to travel expenses covered by ICRANet;
- ) The first URCA meeting on Relativistic Astrophysics - ICRANet Rio - 24-29 June 2013 – Rio de Janeiro;



# Gennady Bisnovaty-Kogan



## *Position:*

Capes-ICRANet Senior Visiting Professor to Brazil

First visit: From: June 15, 2014

To: July 31, 2014

Second visit (expected dates): From: June 1, 2015

To: July 10, 2015

## *Outcome Institution:*

Russian Space Research Institute – IKI

National Research Nuclear University – MEPhI

Moscow – Russia

## *Scientific Work:*

Solution for strong shock wave propagation in the expanding flat Friedman universe;

## *Publications:*

- ) G. S. Bisnovaty-Kogan; “Strong shock in the uniformly expanding medium”; submitted, arXiv: 1408.1918;
- ) Giovannelli, F.; Bisnovaty-Kogan, G. S.; Bruni, I.; Corfini, G.; Martinelli, F.; Rossi, C. “Optical and X-ray behaviour of the high mass X-ray transient A0535+26/HDE245770 in February-March 2014”
- Bisnovaty-Kogan, G. S.; Moiseenko, S. G.; Ardeljan, N. V. “Magnetorotational explosions of core-collapse supernovae”;
- ) Bisnovaty-Kogan, G. S.; Klepnev, A. S.; Giovannelli, F. “Estimation of alpha-viscosity coefficient from observations of nonstationary disk accretion”;
- ) Merafina, M.; Bisnovaty-Kogan, G. S.; Donnari, M. “Galaxy clusters in presence of dark energy: a kinetic approach”;

## *Meetings, conferences, seminars, schools:*

- ) 2013 yearly ICRANet Scientific Meeting on Relativistic Astrophysics on the Occasion of the 50<sup>th</sup> Anniversary of the Kerr solution of the Einstein’s equations June 3-19, 2013 – ICRANet;
- ) Zeldovich 100 conference, Minsk, 10-14 March, 2014;





# Paolo Giommi

## *Position:*

Capes-ICRANet Senior Visiting Professor to Brazil

First Visit: From: December 15, 2013

To: February 12, 2014

Second visit: From: August 8, 2014

To: August 31, 2014



## *Outcome Institution:*

ASDC - ASI Science Data Center

ASI - AGENZIA SPAZIALE ITALIANA

## *Scientific Work:*

- Research in multi-frequency and high-energy astrophysics and astro-particles, particularly in the field of AGN and Blazars.
- Development of new techniques for the analysis of large amounts of archival data
- Definition and first implementation of the Brazilian Science Data Center.

## *Publications:*

- ) P. Padovani, P. Giommi; "A simplified view of blazars: the very high energy gamma-ray vision" Mon. Not. Roy. Astron. Soc; in press [arXiv:1410.0497].
- ) B. Arsioli, B. Fraga, P. Giommi, P. Padovani, M. Marrese; "1WHSP: an IR-based sample of 1,000 VHE gamma-ray blazar candidates"; A&A, in press.
- ) S. O. Kepler, I. Pelisoli, D. Koester, G. Ourique, S. J. Kleinman, A. D. Romero, A. Nitta, D. J. Eisenstein, J.E.S. Costa, B. Kulebi, S. Jordan, P. Dufour, Paolo Giommi; "New White Dwarf Stars in the Sloan Digital Sky Survey DataRelease 10"; submitted to the Mon. Not. Roy. Astron. Soc.
- ) B. Arsioli, P. Padovani, P. Giommi; "High energy peaked blazars as possible counterparts of UHECR"; In preparation
- ) C. H. Brandt, P. Giommi et al.; "Search for possible association between supernova and GRBs in archival data"; in preparation.
- ) C. H. Brandt, P. Giommi, F. Moscato, R. Primavera; "Development of innovative software for the handling and retrieval of data from large archives: application to the Brazilian Science Data Center (BSDC)"; in preparation.

## *Meetings, conferences, seminars, schools:*

- ) Yerevan, Armenia - 1<sup>st</sup> Scientific ICRANet Meeting in Armenia: Black Holes: the largest energy sources in the Universe - 30 June - 4 July 2014 - amount for refund of expenses €158,56+flight covered by ICRANet;
- ) 2013 yearly ICRANet Scientific Meeting on Relativistic Astrophysics on the Occasion of the 50<sup>th</sup> Anniversary of the Kerr solution of the Einstein's equations June 3-19, 2013 – ICRANet;
- ) The first URCA meeting on Relativistic Astrophysics - ICRANet Rio - 24-29 June 2013 – Rio de Janeiro;



# Grant Mathews

## *Position:*

Capes-ICRANet Senior Visiting Professor to Brazil

## *Outcome Institution:*

Professor, Theoretical Astrophysics and Cosmology

Director, Center for Astrophysics

at Notre Dame University (CANDU)

B.S., Michigan State University, 1972

Ph.D., University of Maryland, 1977



## *Scientific Work:*

Core-Collapse Supernovae, Neutron Star Binary Mergers, Neutrino Emission, Neutron Stars, Equation of State, Nucleosynthesis, r-process nucleosynthesis, Gamma-Ray Bursts.

## *Publications:*

Publications: over 235 Refereed journal publications with over 5,500; Citations, over 365 Invited talks and colloquia, 5 Books Co-authored or Edited in Astrophysics, Relativity, and Cosmology  
Publications in 2014

1. Toshitaka Kajino, Akira Tokuhsa, Takashi Yoshida, Grant J. Mathews, Michael A. Famiano, and "Ultra High-Energy Neutrinos via Heavy-Meson Synchrotron Emission in Strong Magnetic Fields," *Astrophys. J.*, 782, L4 (2014).
2. T. Maruyama, N. Yasutake, M.-K. Cheoun, J. Hidaka, T. Kajino, G. J. Mathews, "Rapid Spin Deceleration of Magnetized Proto - Neutron Star by Asymmetric Neutrino Emission," *Phys. Rev. C*89, 035801 (2014). arXiv:1301.7495.
3. G. J. Mathews, A. Snedden, L. A. Phillips, I.-S. Suh, J. Coughlin, A. Bhattacharyak, X. Zhao, and N. Q. Lan, "Origin and evolution of structure and nucleosynthesis for galaxies in the local group," *Mod. Phys. Lett. A*, . 29, 1430012 (2014).
4. T. Kajino, G. J. Mathews, and T. Hayakawa, "Neutrinos in Core - Collapse Supernovae and Nucleosynthesis," *J. Phys. G*41, 044007 (2014).
5. D. G. Yamazaki, M. Kusakabe, T. Kajino, G. J. Mathews and M.- K. Cheoun, "Cosmological solutions to the lithium problem: Big-bang nucleosynthesis with photon cooling, X-particle decay and a primordial magnetic field," *Phys. Rev. D*90, 023001 (2014).
6. G. J. Mathews, J. Hidaka, T. Kajino, and J. Suzuki, "Supernova Relic Neutrinos and the Supernova Rate Problem: Analysis of Uncertainties and Detectability of ONeMg and Failed Supernovae," *Astrophys. J.* 790, 115 (2014) .
7. M. Kusakabe, K. Kim, M.-K Cheoun, T. Kajino, Y. Kino, and G. J. Mathews "Revised Big Bang Nucleosynthesis with Long-lived Negatively Charged Massive Particles: Impact of New  $^6\text{Li}$  Limits, Primordial  $^9\text{Be}$  Nucleosynthesis, and Updated Recombination Rates, " *Astrophys. J. Suppl.* 214, 5, (2014), arXiv:1403.4156,.

8. T. Maruyama, M.-K. Cheoun, J. Hidaka, T. Kajino, N. Yasutake, T. Kuroda, C.-Y. Ryu, and G. J. Mathews, "Asymmetric Neutrino Production in Strongly Magnetized Proto-Neutron Stars," Phys. Rev. D90, 067302, (2014).

*Meetings, conferences, seminars, schools:*

-) Scientific visit to ICRANet from April 30<sup>th</sup> to May 6<sup>th</sup> – per diem and refund of expenses € 1.397,38 covered by ICRANet;

-) Yerevan, Armenia – 1<sup>st</sup> Scientific ICRANet Meeting in Armenia: Black Holes: the largest energy sources in the Universe - 30 June - 4 July 2014 - amount paid as a contribution to travel expenses €500,00 – amount for lodging € 282,00 covered by ICRANet;

# Jorge Armando Rueda Hernández

## *Position:*

Assistant Professor at ICRANet

Member of ICRANet Faculty

Capes-ICRANet Senior Visiting Professor to Brazil

First visit: From December 15, 2013

To: January 15, 2014

Second Visit: From: August 1, 2014

To: August 31, 2014



## *Scientific Work:*

### *Publications:*

- ) J. G. Coelho, R. M. Marinho, M. Malheiro, R. Negreiros, D. L. Cáceres, J. A. Rueda, R. Ruffini; “Dynamical instability of white dwarfs and breaking of spherical symmetry under the presence of extreme magnetic fields”; *ApJ* 794, 86 (2014).
- ) R. Belvedere, K. Boshkayev, Jorge A. Rueda, R. Ruffini; “Uniformly rotating neutron stars in the global and local charge neutrality cases”; *Nuclear Physics A* 921, 33 (2014).
- ) . Ruffini, M. Muccino, C.L. Bianco, M. Enderli, L. Izzo, M. Kovacevic, A.V. Penacchioni, G.B. Pisani, J.A. Rueda, Y. Wang; “On binary-driven hypernovae and their nested late X-ray emission”; *Astronomy & Astrophysics Letters* 565, L10 (2014).
- ) S. M. Carvalho, M. Rotondo, Jorge A. Rueda, R. Ruffini; “Relativistic Feynman-Metropolis-Teller treatment at finite temperatures”; *Physical Review C* 89, 015801 (2014).
- ) M. Razeira, A. Mesquita, C. A. Z. Vasconcellos, R. Ruffini, J. A. Rueda, R. O. Gomes; “Strangeness content of neutron stars with strong sigma-hyperon repulsion”; *Astronomische Nachrichten* 335, 739 (2014).
- ) M. Razeira, A. Mesquita, C. A. Z. Vasconcellos, R. Ruffini, J. A. Rueda, R. O. Gomes; “Effective field theory for neutron stars with strong sigma-hyperon repulsion”; *Astronomische Nachrichten* 335, 733 (2014).
- )S. M. Carvalho, Jorge A. Rueda, R. Ruffini; “On the cooling of globally neutral neutron stars”, *J. Korean Phys. Soc.*; in press.
- )S. M. Carvalho, R. Negreiros, Jorge A. Rueda, R. Ruffini; “Thermal evolution of neutron stars with global and local neutrality”; submitted to *Physical Review C*.
- )R. Belvedere, Jorge A. Rueda, R. Ruffini; “On the Keplerian frequency and moment of inertia of neutron stars”; submitted to *Phys. Rev. C*.
- )R. Belvedere, Jorge A. Rueda, R. Ruffini; “On the magnetic field of pulsars with realistic neutron star configurations”; submitted to *ApJ*.

- ) R. Ruffini, Y. Wang, M. Kovacevic, C.L. Bianco, M. Enderli, M. Muccino, A.V. Penacchioni, G.B. Pisani, J.A. Rueda; "GRB 130427A and SN 2013cq: A Multi-wavelength Analysis of an Induced Gravitational Collapse Event"; submitted to ApJ.
- ) R. Ruffini, L. Izzo, M. Muccino, Jorge A. Rueda, C. Barbarino, C.L. Bianco, H. Dereli, M. Enderli, A.V. Penacchioni, G.B. Pisani, Y. Wang; "Induced Gravitational Collapse in the BATSE era: the case of GRB 970828"; submitted to Astronomy & Astrophysics.
- ) R. Ruffini, G. B. Pisani, M. Muccino, J. A. Rueda, C. L. Bianco, M. Enderli, L. Izzo, M. Kovacevic, A. V. Penacchioni, Y. Wang, E. Zaninoni; "GRB 090510: the tightest observed binary-driven hypernova"; submitted to ApJ.
- )S. M. Carvalho, R. Negreiros, Jorge A. Rueda, R. Ruffini; "Strange stars versus globally neutral neutron stars: structure and cooling"; to be submitted.
- )R. Camargo, F. Cipolletta, J. A. Rueda, R. Ruffini; "On the accuracy of the slow-rotation approximation in the description of neutron stars"; to be submitted.
- )J. P. Pereira, J. G. Coelho, J. A. Rueda, R. Ruffini; "On the stability of interfacial phase-transition surfaces in compact stars"; to be submitted.
- )J. P. Pereira, J. A. Rueda, R. Ruffini; "Stability of compact stars with phase transitions", in preparation.
- ) Pereira, Jonas P., Rueda, Jorge A., Ruffini, Remo, Geralico, Andrea; "Energy decomposition within Einstein-Born-Infeld black holes", in preparation.
- ) D. L. Cáceres, J. G. Coelho, J. A. Rueda, R. Ruffini; "Thermal X-ray emission of massive, fast rotating, highly magnetized white dwarfs"; to be submitted.
- ) D. L. Cáceres, R. Camargo, J. G. Coelho, J. A. Rueda, R. Ruffini; "CXOU J1647: canonical white dwarf and neutron star versus magnetar"; to be submitted.
- ) D. L. Cáceres, R. Camargo, J. G. Coelho, J. A. Rueda, R. Ruffini; "SGRs and AXPs as rotation-powered neutron stars and white dwarfs"; to be submitted.
- ) D. L. Cáceres, S. M. Carvalho, J. G. Coelho, L. Izzo, S. O. Kepler, M. Malheiro, J. A. Rueda, R. Ruffini; "Observational signatures of massive, fast rotating, highly magnetized white dwarfs"; in preparation.
- )J. G. Coelho, J. A. Rueda, R. Ruffini; "On the canonicity of pulsars: torques, breaking index, and radiation efficiency"; in preparation.
- ) R. Camargo, D. P. Menezes, J. A. Rueda, R. Ruffini; "Rapidly rotating neutron stars with relativistic mean-field hadronic models satisfying nuclearmatter constraints"; in preparation.
- ) R. Camargo, F. Cipolletta, D. P. Menezes, J. A. Rueda, R. Ruffini; "Slowly versus rapidly rotating neutron stars with relativistic mean-field hadronic models"; in preparation.
- ) R. Camargo, J. A. Rueda, R. Ruffini, C. A. Z. Vasconcellos; "Rapidly rotating neutron stars with strong sigma-hyperon repulsion"; in preparation.
- ) R. Camargo, J. A. Rueda, R. Ruffini, C. A. Z. Vasconcellos; "The effects of hyperons on the structure of rapidly rotating neutron stars"; in preparation.
- ) R. Belvedere, S. B. Duarte, Jorge A. Rueda, R. Ruffini; "Rapidly rotating neutron stars with extended hadronic nuclear models with delta-mesons"; in preparation.
- ) L. Becerra, C. L. Fryer, S. O. Kepler, J. A. Rueda, R. Ruffini, "On the angular momentum of binary-driven hypernovae", in preparation.

*Meetings, conferences, seminars, schools:*

- ) Third Bego Rencontres - IRAP Ph.D. Erasmus Mundus school - September 8<sup>th</sup>-19<sup>th</sup> 2014;
- ) Yerevan, Armenia - 1<sup>st</sup> Scientific ICRANet Meeting in Armenia: Black Holes: the largest energy sources in the Universe - 30 June - 4 July 2014;
- ) IRAP Ph.D. Erasmus Mundus Workshop - Supernovae, Gamma-ray bursts and the induced gravitational collapse May 11-16, 2014 - Les Houches (France);
- ) 2013 yearly ICRANet Scientific Meeting on Relativistic Astrophysics on the Occasion of the 50th Anniversary of the Kerr solution of the Einstein's equations – June 3-19, 2013 – ICRANet;
- ) The first URCA meeting on Relativistic Astrophysics - ICRANet Rio - 24-29 June 2013 – Rio de Janeiro;





# Gabriel Luchini Martins

## *Position:*

Capes-ICRANet Sabbatical Professor to Europe/Asia

First visit

From: February 15, 2014

To: April 15, 2014

Second visit (expected dates)

From: December 2014

To January 2015

## *Institution:*

Universidade Federal do Espírito Santo

Centro Universitário Norte do Espírito Santo

Departamento de Ciências Naturais

## *Scientific Work:*

Solitons in De Sitter space-time

## *Publications:*

BARON, H E ; LUCHINI, G ; ZAKRZEWSKI, W J . Collective coordinate approximation to the scattering of solitons in the (1+1) dimensional NLS model. Journal of Physics. A, Mathematical and Theoretical (Print), v. 47, p. 265201, 2014.

## *Meetings, conferences, seminars, schools:*





# Herman Mosquera Cuesta

## *Position:*

Capes-ICRANet Sabbatical Professor to Europe/Asia

From: January 21, 2014

To: June 21, 2014

Approved four(4) months extension:

From: June 2014

To: September 2014



## *Institution:*

International Center for Relativistic Astrophysics Network – ICRANet

## *Scientific Work:*

Theoretical Astrophysics; Supernovae; Compact Stars; Non-Linear Electrodynamics in Flat and Curved Spacetimes; Neutrino Physics; Gravitational Waves.

## *Publications:*

-) Pereira, Jonas P.; Mosquera Cuesta, Herman J.; Rueda, Jorge A.; Ruffini, R.; “On the black hole mass decomposition in nonlinear electrodynamics”; Physics Letters B, 734 (2014), p. 396-402.

## *Meetings, conferences, seminars, schools:*

-) Zeldovich-100 Meeting, March 10-14, 2014, Minsk, Belarus - Subatomic particles, Nucleons, Atoms, Universe: Processes and Structure - International conference in honor of Ya. B. Zeldovich 100<sup>th</sup> Anniversary (€ 368,98 fee covered by ICRANet);



# Rodrigo Picanço Negreiros

## *Position:*

Capes-ICRANet Sabbatical Professor to Europe/Asia

Expected dates

From: November 26/2014

To: December 7/2014

From: January 7/2015

To: February 15/2015



## *Institution:*

Universidade Federal Fluminense

Centro de Estudos Gerais

Instituto de Física

## *Scientific Work:*

Equation of State, Structure, Thermal Evolution (Cooling) of Neutron Stars, Hybrid Stars, Quark Stars.

## *Publications:*

## *Meetings, conferences, seminars, schools:*



# Luis Juracy Rangel Lemos



## *Position:*

Capes-ICRANet Sabbatical Professor to Europe/Asia

First visit: From: April 3, 2014

To: May 3, 2014

Second Visit: From: October 15, 2014

To: November 15, 2014

## *Institution*

Fundação Universidade Federal do Tocantins

## *Scientific Work:*

Theory and Data Analysis of Long and Short Gamma-Ray Bursts; Luminosity Function of GRBs; Relativistic Particle Collisions.

## *Publications:*

-) L. J. Rangel Lemos, C. L. Bianco, R. Ruffini, M. Malheiro; "Luminosity function of GRBs"; arXiv:1309.3360.

## *Previous Position:*

IRAP PhD – Fifth Cycle, 2006-09

University of Rome "Sapienza"

## *Publications:*

-) L. Izzo, M. G. Bernardini, C. L. Bianco, L. Caito, B. Patricelli, L. J. Rangel Lemos, R. Ruffini; "On GRB 080916C and GRB 090902B observed by the Fermi satellite"; AIP Conf. Proc. 1279, 343 (2010).

-) L. J. Rangel Lemos, S. Casanova, S. R. Kelner, R. Ruffini; "Fermi's approach to the study of hadronic interactions"; AIP Conf. Proc. 966, 325(2008).

-) L. J. Rangel Lemos, C. L. Bianco, H. J. Mosquera Cuesta, J. A. Rueda, R. Ruffini; "Luminosity function of BATSE GRBs whose prompt emission is not dominated by the P-GRB"; Proceedings of the 25th Texas Symposium on Relativistic Astrophysics. December 6-10, 2010. Heidelberg, Germany. Editors: Frank M. Rieger (Chair), Christopher van Eldik and Werner Hofmann.

## *Meetings, conferences, seminars, schools:*

- 2011. The Third Galileo-Xu Guangqi meeting. October 11-15, Beijing (China)

- The 2<sup>nd</sup> Galileo - Xu Guangqi meeting, July 12-18, 2010. Hanbury Botanic Gardens Ventimiglia (Italy) and Villa Ratti (Nice – France).

- The Shocking Universe - Gamma Ray Burst and High Energy Shock, 2009, September 14-18, San Servolo, Venice, Italy.

- XII Marcel Grossmann Meeting, 2009, July 12-18, Paris, France.
  - 6<sup>th</sup> Italian-Sino Workshop in Relativistic Astrophysics, 2009, June 29 - July 1, Pescara, Italy.
  - X Italian School of Astrophysics - 'Probing Stellar Populations out to the Distant Universe', 2008, September 7-19, Cefalù -Sicily, Italy.
  - 2008 Nanjing GRB Conference, 2008, June 23-27, Nanjing, China.
  - XIII Brazilian School of Cosmology and Gravitation, 2008, July 25-August 2, Mangaratiba/Rio de Janeiro, Brazil.
  - III Stueckelberg Workshop on Relativistic Field Theories, 2008, July 8-18, Pescara, Italy.
  - II Kolkata Conference on 'Observational Evidence for Black Holes in the Universe', 2008, February 10-16, Kolkata, India.
  - September 2007: IX National School of Astrophysics, Venice-Italy.
  - July 2007: IV Italian-Sino Workshop on Relativistic Astrophysics, Pescara-Italy.
  - June 2007: X Italian-Korean Symposium on Relativistic Astrophysics, Pescara-Italy.
  - February 2007: César Lattes Meeting on GRB's, Black Holes and Supernovae, Rio de Janeiro- RJ Brazil.
  - November 2006: Courses and Workshops on Gravitational Waves, Relativistic Astrophysics and Cosmology - Emile Borel Center/IHP, Paris-France.
- 2011 – contribution for research activity €11.852,70 covered by ICRANet;
- 2011 – expenses for refunds €567,49 covered by ICRANet;
- 2010 - contribution for research activity €8.371,08 covered by ICRANet;
- 2010 – expenses for refunds € 1.353,78 covered by ICRANet;
- 2009 - contribution for research activity €10.141,60 covered by ICRANet;
- 2009 – expenses for refunds € 2.002,54 covered by ICRANet;



# César Augusto Zen Vasconcellos

## *Position:*

Capes-ICRANet Sabbatical Professor to Europe/Asia

From: June 16, 2014

To: November 14, 2014

Approved six(6) months extension:

From: November 16, 2014

To: May 15, 2015



## *Institution:*

Universidade Federal do Rio Grande do Sul – UFRGS

## *Scientific Work:*

Quantum Chromo-Dynamics (QCD); Nuclear Equation of State of Neutron Stars; Many-Body Nuclear Interactions; Classical and Quantum Field Theory.

## *Publications:*

- ) M. Razeira, A. Mesquita, C. A. Z. Vasconcellos, R. Ruffini, J. A. Rueda, R. O. Gomes; “Strangeness content of neutron stars with strong sigma-hyperon repulsion”; *Astronomische Nachrichten* 335, 739 (2014).
- ) M. Razeira, A. Mesquita, C. A. Z. Vasconcellos, R. Ruffini, J. A. Rueda, R. O. Gomes; “Effective field theory for neutron stars with strong sigma-hyperon repulsion”; *Astronomische Nachrichten* 335, 733 (2014).
- ) R. Camargo, J. A. Rueda, R. Ruffini, C. A. Z. Vasconcellos; “Rapidly rotating neutron stars with strong sigma-hyperon repulsion”; in preparation.
- ) R. Camargo, J. A. Rueda, R. Ruffini, C. A. Z. Vasconcellos; “The effects of hyperons on the structure of rapidly rotating neutron stars”; in preparation.

## *Meetings, conferences, seminars, schools:*

- ) Third Bego Rencontres - IRAP Ph.D. Erasmus Mundus school - September 8<sup>th</sup>-19<sup>th</sup> 2014;
- ) Yerevan, Armenia - 1<sup>st</sup> Scientific ICRANet Meeting in Armenia: Black Holes: the largest energy sources in the Universe - 30 June - 4 July 2014 - Amount paid for travel expenses €348,90 - amount paid for lodging €156,00 covered by ICRANet;



# Gabriel Bartosch Caminha



## *Current position:*

Postdoc at University of Ferrara (Capes-ICRANet Fellow)

## *Outcome Institution:*

Centro Brasileiro de Pesquisas Físicas – CBPF

## *Scientific Work:*

Gravitational Lensing, Galaxy Clusters, Data Analysis of the Dark Energy Survey (DES).

## *Publications:*

- ) C. Grillo et al.; “CLASH-VLT: Insights on the mass substructures in the Frontier Fields Cluster MACS J0416.1-2403 through accurate strong lens modeling”; submitted to ApJ.
- ) G. B. Caminha et al.; “Cosmography with the CLASH-VLT Cluster Sample”; in preparation.
- ) G. B. Caminha and the DES Strong Lensing Working Group; “Search for strong lensing in the first-year of data of the Dark Energy Survey (DES)”; in preparation.

## *Meetings, conferences, seminars, schools:*

- ) IRAP Ph.D. Erasmus Mundus School - February 2014 Nice Winter School -February, 23 - March, 2 – 2014- (€ 356,71 – fee covered by ICRANet);



# Grasiele Batista dos Santos

## *Current Position:*

Postdoc at ICRANet and Sapienza University of Rome  
(Capes-ICRANet Fellow)



## *Outcome Institution:*

Centro Brasileiro de Pesquisas Físicas – CBPF

## *Scientific Work:*

Quantum Gravity Phenomenology; Rainbow Gravity; Dimensional Reduction in Cosmology; Cosmological Perturbations.

## *Publications:*

- ) E. Bittencourt, J. Salim, G. B. dos Santos; “Magnetic fields and the Weyl tensor in the early universe”; Gen. Rel.Grav. 46, 1790 (2014)
- ) N. Pinto-Neto, G. B. Santos, W. Struyve; “Quantum-to-classical transition of primordial cosmological perturbations in de Broglie-Bohm quantum theory: the bouncing scenario”; Phys. Rev. D 89, 023517 (2014)
- ) Clécio R. Bom, Nelson Pinto-Neto, Grasiele B. Santos; “Consistent Probabilities in Perfect Fluid Quantum Universes”; Phys. Rev. D 89, 023514 (2014)
- ) G. Amelino-Camelia and G. B. dos Santos; “On the singularity problem in rainbow cosmology”; to be submitted.

## *Meetings, conferences, seminars, schools:*

- ) Zeldovich-100 Meeting, March 10-14, 2014, Minsk, Belarus - Subatomic particles, Nucleons, Atoms, Universe: Processes and Structure - International conference in honor of Ya. B. Zeldovich 100<sup>th</sup> Anniversary (€ 170,26 flight €181,54 – lodging € 22,00 – lodging € 113,13 – fee covered by ICRANet);
- ) Yerevan, Armenia - 1<sup>st</sup> Scientific ICRANet Meeting in Armenia: Black Holes: the largest energy sources in the Universe - 30 June - 4 July 2014 (€555,90 – fee covered by ICRANet);



# Rafael Camargo Rodrigues de Lima

## *Current Position:*

Postdoc at ICRANet – Pescara (Capes-ICRANet Fellow)

## *Outcome Institution:*

Universidade Federal de Santa Catarina – UFSC



## *Scientific Work:*

Equation of State and Structure of Neutron Stars, Hybrid Stars, Strange Star; Rotating Stars in Relativity.

## *Publications:*

- ) R. Camargo, F. Cipolletta, J. A. Rueda, R. Ruffini; “On the accuracy of the slow-rotation approximation in the description of neutron stars”; to be submitted.
- ) D. L. Cáceres, R. Camargo, J. G. Coelho, J. A. Rueda, R. Ruffini; “CXOU J1647: canonical white dwarf and neutron star versus magnetar”; to be submitted.
- ) D. L. Cáceres, R. Camargo, J. G. Coelho, J. A. Rueda, R. Ruffini; “SGRs and AXPs as rotation-powered neutron stars and white dwarfs”; to be submitted.
- ) R. Camargo, D. P. Menezes, J. A. Rueda, R. Ruffini; “Rapidly rotating neutron stars with relativistic mean-field hadronic models satisfying nuclear matter constraints”; in preparation.
- ) R. Camargo, F. Cipolletta, D. P. Menezes, J. A. Rueda, R. Ruffini; “Slowly versus rapidly rotating neutron stars with relativistic mean-field hadronic models”; in preparation.
- ) R. Camargo, J. A. Rueda, R. Ruffini, C. A. Z. Vasconcellos; “Rapidly rotating neutron stars with strong sigma-hyperon repulsion”; in preparation.
- ) R. Camargo, J. A. Rueda, R. Ruffini, C. A. Z. Vasconcellos; “The effects of hyperons on the structure of rapidly rotating neutron stars”; in preparation.

## *Meetings, conferences, seminars, schools:*

- ) Third Bego Rencontres -IRAP Ph.D. Erasmus Mundus school - September 8th-19th, 2014 Nice
- ) “Effect of strong magnetic fields on the nuclear pasta phase structure”, The Structure and Signals of Neutron Stars, from Birth to Death, 24-28 March, 2014, Florence, Italy
- ) Yerevan, Armenia - 1<sup>st</sup> Scientific ICRANet Meeting in Armenia: Black Holes: the largest energy sources in the Universe - 30 June - 4 July 2014 (€529,10 – fee covered by ICRANet);
- ) IRAP Ph.D. Erasmus Mundus Workshop - Supernovae, Gamma-ray bursts and the induced gravitational collapse May 11-16, 2014 - Les Houches (France) (€350 – fee covered by ICRANet).





# Jaziel Goulart Coelho



## *Current Position:*

Postdoc at ICRANet and Sapienza University of Rome  
(Capes-ICRANet Fellow)

## *Outcome Institution:*

Instituto Tecnológico de Aeronáutica - ITA

## *Scientific Work:*

Compact objects: SGRs/AXPs, white dwarfs and neutron stars.

## *Publications:*

- ) J. G. Coelho, R. M. Marinho, M. Malheiro, R. Negreiros, D. L. Cáceres, J. A. Rueda, R. Ruffini; “Dynamical instability of white dwarfs and breaking of spherical symmetry under the presence of extreme magnetic fields”; ApJ 794, 86 (2014).
- ) J. P. Pereira, J. G. Coelho, J. A. Rueda; On the stability of interfacial phase-transition surfaces in compact stars; to be submitted.
- ) D. L. Cáceres, J. G. Coelho, J. A. Rueda, R. Ruffini; “Thermal X-ray emission of massive, fast rotating, highly magnetized white dwarfs”; to be submitted.
- ) D. L. Cáceres, R. Camargo, J. G. Coelho, J. A. Rueda, R. Ruffini; “CXOU J1647: canonical white dwarf and neutron star versus magnetar”; To be submitted
- ) D. L. Cáceres, R. Camargo, J. G. Coelho, J. A. Rueda, R. Ruffini; “SGRs and AXPs as rotation-powered neutron stars and white dwarfs”; to be submitted.
- ) D. L. Cáceres, S. M. Carvalho, J. G. Coelho, L. Izzo, S. O. Kepler, M. Malheiro, J. A. Rueda, R. Ruffini; “Observational signatures of massive, fast rotating, highly magnetized white dwarfs”; in preparation.
- ) J. G. Coelho, J. A. Rueda, R. Ruffini; “On the canonicity of pulsars: torques, breaking index, and radiation efficiency”; in preparation.

## *Meetings, conferences, seminars, schools:*

- ) IRAP Ph.D. Erasmus Mundus Workshop - Supernovae, Gamma-ray bursts and the induced gravitational collapse May 11-16, 2014 - Les Houches (France); (€ 350 – covered by ICRANet)
- ) Sant Cugat - Spain – Forum on Astrophysics: Gravitational Waves Astrophysics – April 22 – 25, 2014 (€ 873,85 – fee covered by ICRANet);
- ) Yerevan, Armenia - 1<sup>st</sup> Scientific ICRANet Meeting in Armenia: Black Holes: the largest energy sources in the Universe - 30 June - 4 July 2014 (€ 529,10 – fee covered by ICRANet);



# Bernardo Machado de Oliveira

## Fraga



### *Current Position:*

Postdoc at ICRANet and Sapienza University of Rome  
(Capes-ICRANet Fellow)

### *Scientific Work:*

Blazars, Active Galactic Nuclei.

### *Publications:*

- ) B. Arsioli, B. Fraga, P. Giommi, P. Padovani, M. Marrese; "1WHSP: an IR-based sample of 1,000 VHE gamma-ray blazar candidates"; A&A, in press
- ) S. Turriziani, B. Fraga, B. Arsioli, P. Giommi; "A complete sample of Swift/SDSS faint blazars and non-thermal dominated AGN"; to be submitted to A&A.

### *Meetings, conferences, seminars, schools:*

- ) Yerevan, Armenia - 1<sup>st</sup> Scientific ICRANet Meeting in Armenia: Black Holes: the largest energy sources in the Universe - 30 June - 4 July 2014 (€474,92 – fee covered by ICRANet);

### *Previous Position:*

University of Rome "Sapienza"  
International Center for Relativistic Astrophysics Network – ICRANet  
IRAP PhD – Erasmus Mundus – First Cycle, 2010-2013

### *Publications:*

- ) Carlos R. Argüelles, Remo Ruffini, B. Fraga ; "Critical configurations for a system of semi-degenerate fermions"; J. Kor. Phys. Soc.; Volume 65, Issue 6 (2014) pp 809-813
- ) Carlos R. Argüelles, Remo Ruffini, Ivan Siutsou, Bernardo Fraga; "On the distribution of dark matter in galaxies: quantum treatments"; J. Kor. Phys. Soc.; Volume 65, Issue 6 (2014) pp 801-804
- ) 1WHSP: an IR-based sample of  $\approx 1,000$  VHE gamma-ray blazar candidates – Submitted to A&A
- ) On the distribution of dark matter in galaxies: quantum treatments - JKPS
- ) A complete sample of SWIFT/SDSS faint blazars and non-thermal dominated AGN – in preparation

### *Meetings, conferences, seminars, schools:*

- ) Attendance to the Erasmus Mundus School, Nice, France (09/2010).

- ) Attendance to the 25th Symposium of Relativistic Astrophysics Texas 2010, Heidelberg, Germany (12/2010).
- ) Attendance to the IRAP PhD. Erasmus Mundus Workshop, Recent News from the MeV, GeV and TeV Gamma-Ray Domains, Pescara, Italy (03/2011). Oral Presentation: Cosmological Constraints on 'ino' masses and quantum statistic.
- ) Attendance to the IRAP PhD. Erasmus Mundus Workshop, From Nuclei to White Dwarfs and Neutron Stars, Les Houches, France (04/2011).
- ) Attendance to the Erasmus Mundus School, Nice, France (05/2011).
- ) Attendance to the Erasmus Mundus School, Nice, France (09/2011).
- ) Attendance to the 3rd Galileo-Xu Guangqi Meeting, Beijing, China (10/2011). Oral presentation: Self-Gravitating system of fermions as central objects and dark matter halos in galaxies.
- ) Attendance to the XIII Marcel Grossman Meeting, Stockholm, Sweden (07/2012). Oral presentation: Semi-degenerate self-gravitating system of fermions as Dark Matter on galaxies I: Universality laws.
- ) Attendance to the Erasmus Mundus School, Nice, France (09/2012). Oral presentation: Self-gravitating system of fermions as Dark Matter on galaxies.
- ) Attendance to "Current Issues on Relativistic Astrophysics", Seoul, South Korea (11/12). Oral Presentation: Self-gravitating system of fermions as Dark Matter on galaxies.
- ) Attendance to the 7<sup>th</sup> Yearly ICRANet scientific meeting, Pescara, Italy (06/2013). Oral Presentations: Self-gravitating system of fermions as dark matter halos and central objects in galaxies; A multi-wavelength catalog of HSP blazars based on the WISE all-sky survey.
- ) Attendance to the 1<sup>st</sup> URCA meeting, Rio de Janeiro, Brazil (06/2013). Oral Presentations: Self-gravitating system of fermions as dark matter in galaxies; A multi-wavelength catalog of HSP blazars based on the WISE all-sky survey.
- ) Attendance to the 13<sup>th</sup> Italo-Korean Meeting, Seoul, South Korea (07/2013). Oral presentation: Self-gravitating system of fermions as dark matter in galaxies.
- ) 2013 yearly ICRANet Scientific Meeting on Relativistic Astrophysics – Pescara on the Occasion of the 50<sup>th</sup> Anniversary of the Kerr solution of the Einstein's Equations June 3-19, 2013 – ICRANet – Rome and Pescara (€504,99 – fee covered by ICRANet);
- ) The first URCA meeting on Relativistic Astrophysics ICRANet Rio - 24-29 June 2013 – Rio de Janeiro – (€769,09 – fee covered by ICRANet);
- ) 13<sup>th</sup> Italian-Korean meeting on Relativistic Astrophysics – July 15-19 2013, Ewha Womans University – (€ 981,01 – fee covered by ICRANet);

# Eduardo Henrique Silva Bittencourt

## *Current Position:*

Postdoc at ICRANet and Sapienza University of Rome  
(Capes-ICRANet Fellow)



## *Outcome Institution:*

Centro Brasileiro de Pesquisas Físicas – CBPF

## *Scientific Work:*

Differential Geometry; Gravitation and Cosmology; Classical Field Theory.

## *Publications:*

- ) M. Novello, E. Bittencourt, J. M. Salim; “The Quasi-Maxwellian Equations of General Relativity: Applications to Perturbation Theory”; Brazilian Journal of Physics (2014)
- ) E. Bittencourt, V. A. De Lorenci, R. Klippert, M. Novello, J. M. Salim; “Analogue black holes for light rays in static dielectrics”; Classical and Quantum Gravity 31, 145007 (2014)
- ) E. Bittencourt, S. Faci, M. Novello; “Chiral symmetry breaking as a geometrical process”; Int. J. Mod. Phys. A 29, 1450145 (2014)
- ) E. Bittencourt, M. Novello; “A proposal for the origin of the anomalous magnetic moment”; Int. J. Mod. Phys. A 29, 1450075 (2014)
- ) E. Bittencourt, J. Salim, G. B. dos Santos; “Magnetic fields and the Weyl tensor in the early universe”; Gen. Rel. Grav. 46, 1790 (2014)
- ) D. Bini, E. Bittencourt, A. Geralico, R. Jantzen; “Slicing black holes spacetimes”; in preparation.
- ) D. Bini, E. Bittencourt, A. Geralico, R. Jantzen, L. Stella; “The general relativistic Poynting-Robertson effect”; in preparation.
- ) D. Bini, E. Bittencourt, A. Geralico, R. Jantzen; “Dirac equation in the C metric”; in preparation.

## *Meetings, conferences, seminars, schools:*

- ) Zeldovich-100 Meeting, March 10-14, 2014, Minsk, Belarus - Subatomic particles, Nucleons, Atoms, Universe: Processes and Structure - International conference in honor of Ya. B. Zeldovich 100<sup>th</sup> Anniversary (€488,70 – fee covered by ICRANet);
- ) Yerevan, Armenia - 1<sup>st</sup> Scientific ICRANet Meeting in Armenia: Black Holes: the largest energy sources in the Universe - 30 June - 4 July 2014 (€ 554,90 – fee covered by ICRANet);
- ) 2012 – Scientific visit to ICRANet (€668,87 – fee covered by ICRANet);



# Riccardo Belvedere

## *Current Position:*

Postdoc at ICRANet – Rio de Janeiro and Universidade Federal Fluminense (Capes-ICRANet Fellow)

## *Outcome Institution:*

IRAP PhD – University of Rome "Sapienza"



## *Scientific work:*

I am collaborating with Professor Remo Ruffini and Dr. Rueda to analyze the astrophysical consequences of our new model of neutron stars, in particular focusing on its effect on the Kerr quadrupole moment and the creation of a black hole. At the same time I am working with Professor Sergio Barbosa Duarte, from CBPF, to introduce more degrees of freedom in our neutron stars model, taking into account the Delta-Resonances in the Walecka and Zimanyi-Moszkowski models. With Professor Rodrigo Picanço Negreiros, from UFF (Universidade Federal Fluminense), I am applying the cooling to our model of neutron stars, being it, until now, developed in the  $T=0$  limit.

## *Publications:*

- ) R. Belvedere, K. Boshkayev, Jorge A. Rueda, R. Ruffini; "Uniformly rotating neutron stars in the global and local charge neutrality cases"; Nuclear Physics A 921, 33 (2014)
- ) R. Belvedere, Jorge A. Rueda, R. Ruffini; "On the magnetic field of pulsars with realistic neutron star configurations"; to appear in ApJ.
- ) R. Belvedere, Jorge A. Rueda, R. Ruffini; "On the Keplerian frequency and moment of inertia of neutron stars"; submitted to Phys. Rev. C.
- ) R. Belvedere, S. B. Duarte, Jorge A. Rueda, R. Ruffini; "Rapidly rotating neutron stars with extended hadronic nuclear models with delta-mesons"; in preparation.

## *Meetings, conferences, seminars, schools:*

- ) IRAP Ph.D. Erasmus Mundus School - February 2014 Nice Winter School -February, 23 - March, 2 – 2014 (€143,09 fee covered by ICRANet);
- ) Yerevan, Armenia – 1<sup>st</sup> Scientific ICRANet Meeting in Armenia: Black Holes: the largest energy sources in the Universe - 30 June - 4 July 2014 (€578,89 – fee covered by ICRANet); Travel from Brazil to Europe (€ 1.021,90 covered by ICRANet);
- ) International Conference - Physics of Neutron Stars – 2014 Commemorating the 100<sup>th</sup> birthday of Yakov Borisovich Zel'dovich - July 28-August 1, 2014, St. Petersburg, Russia (€ 598,00 – fee covered by ICRANet);





# Sheyse Martins de Carvalho



## *Current Position:*

Postdoc at ICRANet – Rio de Janeiro and Universidade Federal Fluminense  
(Capes-ICRANet Fellow)

## *Outcome Institution:*

IRAP PhD Student - Erasmus Mundus Joint Doctorate Fellowship  
University of Nice Sophia-Antipolis  
University of Rome "Sapienza"

## *Scientific Work:*

Equation of State, Structure, and Thermal Evolution (cooling) of Neutron Stars, Quark Stars, White Dwarfs.

## *Publications:*

- ) S. M. Carvalho, R. Negreiros, Jorge A. Rueda, R. Ruffini; "Thermal evolution of neutron stars with global and local neutrality"; to appear in Physical Review C.
- ) S. M. Carvalho, R. Negreiros, Jorge A. Rueda, R. Ruffini; "Strange stars versus globally neutral neutron stars: structure and cooling"; to be submitted.
- ) D. L. Cáceres, S. M. Carvalho, J. G. Coelho, L. Izzo, S. O. Kepler, M. Malheiro, J. A. Rueda, R. Ruffini; "Observational signatures of massive, fast rotating, highly magnetized white dwarfs"; in preparation.

## *Meetings, conferences, seminars, schools:*

Air ticket from Brazil to Europe for scientific work in Italy € 1.145,08 covered by ICRANet

## *Previous Position:*

IRAP PhD – Erasmus Mundus – First Cycle, 2010-2013

## *Publications:*

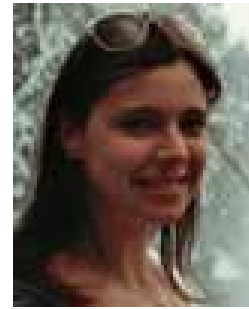
- ) S. M. Carvalho, M. Rotondo, Jorge A. Rueda, R. Ruffini; "Relativistic Feynman-Metropolis-Teller treatment at finite temperatures"; Physical Review C 89, 015801 (2014)
- ) S. M. Carvalho, Jorge A. Rueda, R. Ruffini; "On the cooling of globally neutral neutron stars"; J. Korean Phys. Soc.; in press

## *Meetings, conferences, seminars, schools:*

- ) Recent News from the MeV, GeV and TeV Gamma-Ray Domains, March 21-26, 2011 Pescara (Italy);
- ) From Nuclei to White Dwarfs and Neutron Stars, April 3-8, 2011 Les Houches (France);

- ) IRAP Ph.D. Erasmus Mundus school, May 25th - June 10<sup>th</sup>, 2011;
- ) IRAP Ph.D. Erasmus Mundus school, September 5th – 16<sup>th</sup>, 2011;
- ) THIRD GALILEO - XU GUANGQI MEETING, OCTOBER 11-15, 2011;
- ) Erasmus Mundus School, Nice, France, 5-8 June, 2012;
- ) Marcel Grossmann meeting, Stockholm, Sweden, 1<sup>st</sup> - 7th July, 2012;
- ) Erasmus Mundus School, Nice, France, 3<sup>rd</sup> – 19<sup>th</sup> September, 2012;
- ) Current Issues on Relativistic Astrophysics - November 5-6, 2012 - Seoul (South Korea);
- ) 2013 yearly ICRANet Scientific Meeting on Relativistic Astrophysics on the Occasion of the 50<sup>th</sup> Anniversary of the Kerr solution of the Einstein's equations June 3-19, 2013 – ICRANet (622.50 – fee covered by ICRANet);
- ) 13th Italian-Korean meeting on Relativistic Astrophysics - July 15-19 2013, Ewha Womans University (€ 981,01 – fee covered by ICRANet);
- ) The first URCA meeting on Relativistic Astrophysics - ICRANet Rio - 24-29 June 2013 – Rio de Janeiro (€687,10 – fee covered by ICRANet);
- ) 2012 December – Mission to Brazil - € 1.770,74 covered by ICRANet;

# Ana Virginia Penacchioni



## *Current Position:*

Postdoc at Instituto Nacional de Pesquisas Espaciais -  
INPE (Capes-ICRANet Fellow)

## *Outcome Institution:*

IRAP Student - Erasmus Mundus Joint Doctorate Fellowship  
University of Nice Sophia-Antipolis  
University of Rome "Sapienza"

## *Scientific Work:*

ProtoMIRAX, Astronomy, X-ray Astrophysics, Balloon Experiment, Gamma-Ray Bursts.

## *Publications:*

- ) R. Ruffini, M. Muccino, C.L. Bianco, M. Enderli, L. Izzo, M. Kovacevic, A.V. Penacchioni, G.B. Pisani, J.A. Rueda, Y. Wang; "Onbinary-drivenhypernovae and theirnested late X-rayemission"; Astronomy & Astrophysics Letters 565, L10 (2014)
- ) L. Amati et al. ; "GAME: GRB and All-sky Monitor Experiment"; Int.J. Mod.Phys.D23, 1430010 (2014)
- ) R. Ruffini, Y. Wang, M. Kovacevic, C.L. Bianco, M. Enderli, M. Muccino, A.V. Penacchioni, G.B. Pisani, J.A. Rueda; "GRB 130427A and SN 2013cq: A Multi-wavelength Analysis of an Induced Gravitational Collapse Event"; submitted to ApJ.
- ) R. Ruffini, L. Izzo, M. Muccino, Jorge A. Rueda, C. Barbarino, C.L. Bianco, H. Dereli, M. Enderli, A.V. Penacchioni, G.B. Pisani, Y. Wang; "Induced Gravitational Collapse in the BATSE era: the case of GRB 970828"; submitted to Astronomy & Astrophysics.

## *Meetings, conferences, seminars, schools:*

- ) IRAP Ph.D. Erasmus Mundus Workshop  
Supernovae, Gamma-ray bursts and the induced gravitational collapse May 11-16, 2014 - Les Houches (France) – ticket from Brazil to Europe € 1.501,77 covered by ICRANet



# Ivan Siutsou



## *Current Position:*

Postdoc at ICRANet – Rio de Janeiro (Capes-ICRANet Fellow)

## *Outcome Institution:*

IRAP PhD

University of Rome “Sapienza”

## *Scientific Work:*

1. Electron-positron plasma
2. Analysis of Lorentz invariance violation in variable high-energy gamma-ray sources
3. Semidegenerate self-gravitating system of fermions as a model for dark matter galactic halos

## *Publications:*

- ) Carlos R. Argüelles, Remo Ruffini, Ivan Siutsou, Bernardo Fraga; “On the distribution of dark matter in galaxies: quantum treatments”; J. Kor. Phys. Soc.; in press.
- ) I. Siutsou, C. R. Argüelles, R. Ruffini; “Dark Matter Massive Fermions and Einasto Profiles in Galactic Haloes”; submitted to A&A.
- ) U. Barres de Almeida, R. Ruffini, I. Siutsou; “Limits on Lorentz invariance violation from highly variable gamma-ray data of GRBs and Blazars”; in preparation.
- ) A. Aksenov, I. Siutsou, G. Vereshchagin; “Electron-positron plasmathermalization in optically thick environment”; in preparation.

## *Meetings, conferences, seminars, schools:*

- ) Zeldovich-100 Meeting, March 10-14, 2014, Minsk, Belarus - Subatomic particles, Nucleons, Atoms, Universe: Processes and Structure - International conference in honor of Ya. B. Zeldovich 100<sup>th</sup> Anniversary – amount paid as a refund of expenses € 417,73 – lodging € 66,07 covered by ICRANet



# Elena Zaninoni

## *Current Position:*

Postdoc at ICRANet – Rio de Janeiro  
(Capes-ICRANet Fellow)



INAF

## *Outcome Institution:*

Osservatorio Astronomico di Brera

## *Scientific Work:*

My research focuses on gamma-ray bursts (GRBs), in particular on X-ray and optical data analysis and their interpretation.

## *Publications:*

- ) E. Zaninoni, M.G. Bernardini, R. Margutti, S. Oates, G. Chincarini; “Gamma-ray burst optical light-curve zoo: comparison with X-ray observations”; A&A 557, A12 (2014)
- ) R. Ruffini, G. B. Pisani, M. Muccino, J. A. Rueda, C. L. Bianco, M. Enderli, L. Izzo, M. Kovacevic, A. V. Penacchioni, Y. Wang, E. Zaninoni; “GRB 090510: the tightest observed binary-driven hypernova”; submitted to ApJ.

## *Meetings, conferences, seminars, schools:*

- ) Seminar at Phys. Department La Sapienza Title: Gamma-ray burst optical light-curve zoo: comparison with X-ray observations. – amount paid as a refund € 108,07 covered by ICRANet;
- ) Mission to Roma for scientific work 31/3/2014 – 09/04/2014 - amount paid as a refund € 142,53 covered by ICRANet;
- ) Workshop GRB in the multi – messenger era – Institut de Physique du Globe, Paris, June 16<sup>th</sup> to June 19<sup>th</sup> 2014 - amount paid as a refund € 553,82 covered by ICRANet;
- ) Yerevan, Armenia - 1<sup>st</sup> Scientific ICRANet Meeting in Armenia: Black Holes: the largest energy sources in the Universe - 30 June - 4 July 2014 - expenses € 1.628,92 covered by ICRANet;





# Gustavo de Barros

## *Position:*

IRAP PhD – Fifth Cycle, 2006-09

## *Current position:*

Professor Adjunto Centro Universitário da Zona Oeste – OEZO



## *Scientific Work:*

Theory and Data Analysis of Long and Short Gamma-Ray Bursts.

## *Publications:*

- ) Patricelli, B.; Bernardini, M. G.; Bianco, C. L.; Caito, L.; de Barros, G.; Izzo, L.; Ruffini, R.; Vereshchagin, G. V.; "Analysis of GRB 080319B and GRB 050904 within the Fireshell Model: Evidence for a Broader Spectral Energy Distribution"; The Astrophysical Journal, 756 (2012), id. 16; DOI: 10.1088/0004-637X/756/1/16.
- ) Bianco, C. L.; Amati, L.; Bernardini, M. G.; Caito, L.; De Barros, G.; Izzo, L.; Patricelli, B.; Ruffini, R.; "The class of "disguised" short GRBs and its implications for the Amati relation"; Memorie della Società Astronomica Italiana Supplement, 21 (2012), 139.
- ) Patricelli, B.; Bernardini, M. G.; Bianco, C. L.; Caito, L.; de Barros, G.; Izzo, L.; Ruffini, R.; Vereshchagin, G.; "High Energetic Gamma Ray Bursts and Their Spectral Properties Within the Fireshell Model"; International Journal of Modern Physics: Conference Series, 12 (2012), pp. 385-389; DOI: 10.1142/S2010194512006599.
- ) Bianco, C. L.; Bernardini, M. G.; Caito, L.; De Barros, G.; Izzo, L.; Muccino, M.; Patricelli, B.; Penacchioni, A. V.; Pisani, G. B.; Ruffini, R.; "Needs for a new GRB classification following the fireshell model: "genuine short", "disguised short" and "long" GRBs"; Proceedings of the Gamma-Ray Bursts 2012 Conference (GRB 2012). May 7-11, 2012. Munich, Germany.
- ) de Barros, G.; Amati, L.; Bernardini, M. G.; Bianco, C. L.; Caito, L.; Izzo, L.; Patricelli, B.; Ruffini, R.; "On the nature of GRB 050509b: a disguised short GRB"; Astronomy & Astrophysics, 529 (2011), A130; DOI: 10.1051/0004-6361/201116659.
- ) Caito, L.; Amati, L.; Bernardini, M. G.; Bianco, C. L.; de Barros, G.; Izzo, L.; Patricelli, B.; Ruffini, R.; "GRB 071227: an additional case of a disguised short burst"; Astronomy and Astrophysics, 521 (2010), A80; DOI: 10.1051/0004-6361/201014640.
- ) Patricelli, B.; Bernardini, M. G.; Bianco, C. L.; Caito, L.; de Barros, G.; Izzo, L.; Ruffini, R.; "Black Holes in Gamma Ray Bursts"; AIP Conference Proceedings, 1279 (2010), pp. 406-408, DOI: 10.1063/1.3509327.
- ) Bianco, Carlo Luciano; Bernardini, Maria Grazia; Caito, Letizia; de Barros, Gustavo; Izzo, Luca; Patricelli, Barbara; Ruffini, Remo; "Disguised Short Bursts and the Amati Relation"; AIP Conference Proceedings, 1279 (2010), pp. 299-301; DOI: 10.1063/1.3509290.
- ) Ruffini, Remo; Aksenov, Alexey G.; Bernardini, Maria Grazia; Bianco, Carlo Luciano; Caito, Letizia; Chardonnet, Pascal; Dainotti, Maria Giovanna; de Barros, Gustavo; Guida, Roberto; Izzo, Luca; Patricelli, Barbara; Lemos, Luis Juracy Rangel; Rotondo, Michael; Hernandez, Jorge Armando Rueda; Vereshchagin, Gregory; Xue, She-Sheng; "The Blackholic energy and the canonical Gamma-Ray Burst IV: the "long," "genuine short" and "fake-disguised short" GRBs"; XIII Brazilian School on Cosmology

and Gravitation (XIII BSCG); AIP Conference Proceedings, 1132 (2009), pp. 199-266; DOI: 10.1063/1.3151839.

-) Ruffini, Remo; Aksenov, Alexey; Bernardini, Maria Grazia; Bianco, Carlo Luciano; Caito, Letizia; Dainotti, Maria Giovanna; de Barros, Gustavo; Guida, Roberto; Vereshchagin, Gregory; Xue, She-Sheng; "The canonical Gamma-Ray Bursts: long, "fake"- "disguised" and "genuine" short bursts"; AIP Conference Proceedings, 1111 (2009), pp. 325-332; DOI: 10.1063/1.3141569.

-) de Barros, G.; Aksenov, A.; Bianco, C. L.; Ruffini, R.; Vereshchagin, G.; "Fireshell versus Fireball scenarios"; AIP Conference Proceedings, 1065 (2008), pp. 234-237; DOI: 10.1063/1.3027919.

-) e Barros, G.; Bernardini, M. G.; Bianco, C. L.; Caito, L.; Dainotti, M. G.; Guida, R.; Ruffini, R.; "Is GRB 050509b a "genuine" short GRB?"; AIP Conference Proceedings, 1065 (2008), pp. 231-233; DOI: 10.1063/1.3027918.

-) Ruffini, Remo; Aksenov, Alexey G.; Bernardini, Maria Grazia; Bianco, Carlo Luciano; Caito, Letizia; Dainotti, Maria Giovanna; de Barros, Gustavo; Guida, Roberto; Vereshchagin, Gregory V.; Xue, She-Sheng; "The canonical Gamma-Ray Bursts and their "precursors""; AIP Conference Proceedings, 1065 (2008), pp. 219-222; DOI: 10.1063/1.3027915.

### *Meetings, conferences, seminars, schools:*

- 2010 – Contribution for research activity €8371,08 covered by ICRANet;
- 2010 – Refund of expenses € 2.089,88 covered by ICRANet;
- 2009 – Contribution for research activity €10.141,60 covered by ICRANet;
- 2009 – Refund of expenses € 2.073,94 covered by ICRANet;
- 2006. November 28, December 17 – "Gravitational waves, relativistic astrophysics and cosmology" doctoral School, Institut Henry Poincaré – Université Pierre et Marie Curie. Paris (France)
- 2006. December 11-15. "High Energy, Cosmology and Strings" Paris - France.
- 2007. February 25, March 3 - Cesare Lattes Meeting on GRBs, black holes and supernovae. Rio de Janeiro – Brasil
- 2007. June 25-30. "X Italian-Korean Symposium on Relativistic Astrophysics", Pescara - Italia.
- 2007. July 20-30. "IV Italian-Sino Workshop on Relativistic Astrophysics", Pescara - Italia.
- 2007. Sept, 16-22 - National School of Astrophysics, 9° cycle, 2° course. Isola di San Servolo - Venezia (Italy);
- 2008. February, 10-15 - Observational evidences for Black-holes in the universe. Kolkata (India)
- 2008. February, 16-17 - Black-holes, Neutron Stars and Gamma ray bursts. Kolkata (India)
- 2008. June, 23-27 - Nanjing GRB conference. Nanjing (China)
- 2008. July, 8 -18 – Third Stueckelberg Workshop on Relativistic Field Theories. Pescara (Italy)
- 2008. July 20, August 2 - XIII Brazilian School of Cosmology and Gravitation. Rio de Janeiro (Brazil)
- 2008. September, 7-19 - Probing stellar populations out to the distant universe. Cefalù (Italy)
- 2009. May 2-5 – APS Physics April Meeting, Colorado
- 2009. 6th Italian-Sino Workshop – June 29-July 1, 2009 – Pescara (Italy)
- 2009. MG12 – 12-18 July 2009. Paris (France)
- 2009. May 26-29, The sun the stars the universe and general relativity, Fortaleza/Sobral (Brazil)

- 2009. September 14-18, The Shocking Universe - Gamma Ray Burst and High Energy Shock, San Servolo, Venice, Italy.
- 2010. The Second Galileo-Xu Guangqi meeting. July 12-17, 2010 Nice France
- 2010. Irap Ph.D. Erasmus Mundus school. September 6-24, 2010 Nice France



# Fernanda Gomes de Oliveira

## *Current position:*

IRAP PhD – Erasmus Mundus

Third Cycle, 2012-2015



## *Scientific Work:*

My research area is devoted to study the evolution of binary systems composed of an evolved star and a neutron star and the conditions under which they lead to the process of Induced Gravitational Collapse (IGC), within the context of the gamma-ray burst (GRB) supernova (SN) connection. It supposes the study the conditions that lead to an SN explosion of the evolved star before the system could merge by the shrinking of the orbit owing to gravitational wave emission. There are in addition other conditions besides the above for the occurrence of the IGC as short orbital periods of the order of minutes. It is also studied the emission of gravitational waves from neutron star binaries originating short GRBs, and their detectability by the new generation of gravitational wave detectors such as Advanced LIGO.

## *Publications:*

- ) Oliveira, F. G.; Rueda, Jorge A.; Ruffini, R.; "Gravitational Waves versus X-Ray and Gamma-Ray Emission in a Short Gamma-Ray Burst"; The Astrophysical Journal, Volume 787 (2014), 150; DOI: 10.1088/0004-637X/787/2/150.
- ) Becerra, L., Oliveira, F. G.; Rueda, Jorge A.; Ruffini, R.; "Neutron star-black hole binaries as the outcome of binary-driven hypernovae: binary parameters and gravitational wave emission"; in preparation.
- ) Becerra, L., Oliveira, F. G.; Rueda, Jorge A.; Ruffini, R.; "Neutron star-black hole binaries as the outcome of binary-driven hypernovae: effects of an aspherical supernova"; in preparation.

## *Meetings, conferences, seminars, schools:*

- ) Third Bego Rencontres - IRAP Ph.D. Erasmus Mundus school - September 8<sup>th</sup>-19<sup>th</sup> 2014
- ) Yerevan, Armenia - 1<sup>st</sup>Scientific ICRANet Meeting in Armenia:Black Holes: the largest energy sources in the Universe - 30 June - 4 July 2014 (457,63 fee covered by ICRANet);
- ) IRAP Ph.D. Erasmus Mundus Workshop - Supernovae, Gamma-ray bursts and the induced gravitational collapse May 11-16, 2014 - Les Houches (France)
- ) IRAP Ph.D. Erasmus Mundus School - February 2014 Nice Winter School- February, 23 - March, 2 – 2014 (€227,40 fee covered by ICRANet);
- ) SantCugat - Spain – Forum on Astrophysics: Gravitational Waves Astrophysics – April 22 – 25, 2014 (€ 892,57 fee covered by ICRANet);
- ) Zeldovich-100 Meeting, March 10-14, 2014, Minsk, Belarus - Subatomic particles, Nucleons, Atoms, Universe: Processes and Structure - International conference in honor of Ya. B. Zeldovich 100<sup>th</sup> Anniversary (€563,08 fee covered by ICRANet);

- ) 2013 yearly ICRANet Scientific Meeting on Relativistic Astrophysics – Pescara on the Occasion of the 50th Anniversary of the Kerr solution of the Einstein's equations June 3-19, 2013 – ICRANet (€ 923,45 fee covered by ICRANet);
- ) IRAP Ph.D. Erasmus Mundus school - September 2- 20, 2013 – Nice (€642,63 fee covered by ICRANet);
- ) Second Bego Scientific Rencontre Meeting May 16th-31st, 2013 - University of Nice "Sophia Antipolis" (France) (€ 435,30 fee covered by ICRANet);
- ) September 3-21, 2012 - IRAP Ph.D. Erasmus Mundus School, Nice, France.

# Tais Maiolino

## *Current position:*

IRAP PhD – Erasmus Mundus  
Fourth Cycle, 2013-2016

## *Scientific Work:*

Radiation Processes in X-Ray Binaries.

## *Publications:*

- ) Castro, M.; D'Amico, F.; Braga, J.; Maiolino, T.; Pottschmidt, K.; Wilms, J.; "Confirming the thermal Comptonization model for black hole X-ray emission in the low-hard state"; Astronomy & Astrophysics, Volume 569 (2014), A82. DOI: 10.1051/0004-6361/201323290.
- ) Maiolino, T.; D'Amico, F.; Braga, J.; "INTEGRAL observations of Scorpius X-1: evidence for Comptonization up to 200 keV"; Astronomy & Astrophysics, Volume 551 (2013), L2; DOI: 10.1051/0004-6361/201220677.

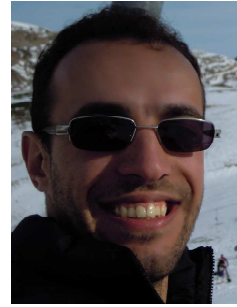
## *Meetings, conferences, seminars, schools:*

- ) Third Bego Rencontres - IRAP Ph.D. Erasmus Mundus school - September 8<sup>th</sup>-19<sup>th</sup> 2014;
- ) Yerevan, Armenia - 1<sup>st</sup> Scientific ICRANet Meeting in Armenia: Black Holes: the largest energy sources in the Universe - 30 June - 4 July 2014
- ) IRAP Ph.D. Erasmus Mundus Workshop - Supernovae, Gamma-ray bursts and the induced gravitational collapse May 11-16, 2014 - Les Houches (France)
- ) Zeldovich-100 Meeting, March 10-14, 2014, Minsk, Belarus - Subatomic particles, Nucleons, Atoms, Universe: Processes and Structure - International conference in honor of Ya. B. Zeldovich 100<sup>th</sup> Anniversary – paid by Ferrara University
- ) IRAP Ph.D. Erasmus Mundus School - February 2014 – February, 23 - March, 2 – 2014 Nice





# Jonas Pedro Pereira



## *Current position:*

IRAP PhD – Erasmus Mundus  
Second Cycle, 2011-2014

## *Scientific Work:*

### *Publications:*

- ) Pereira, Jonas P., Rueda, Jorge A., Ruffini, Remo, Geralico, Andrea; “Energy decomposition within Einstein-Born-Infeld black holes”, in preparation.
- ) J. P. Pereira, J. G. Coelho, J. A. Rueda, R. Ruffini; “On the stability of interfacial phase-transition surfaces in compact stars”; in preparation.
- ) Mosquera-Cuesta, Herman, Pereira, Jonas P.; “Neutrino physics in slowly rotating nonlinear charged black hole spacetimes”, in preparation.
- ) Pereira, Jonas P., Rueda, Jorge A., Ruffini, Remo; “Stability of compact stars with phase transitions”, in preparation.
- ) Pereira, Jonas P.; Mosquera Cuesta, Herman J.; Rueda, Jorge A.; Ruffini, R.; “On the black hole mass decomposition in nonlinear electrodynamics”; Physics Letters B, 734 (2014), p. 396-402.

### *Meetings, conferences, seminars, schools:*

- ) Third Bego Rencontres - IRAP Ph.D. Erasmus Mundus school - September 8<sup>th</sup>-19<sup>th</sup> 2014
- ) Yerevan, Armenia - 1<sup>st</sup> Scientific ICRANet Meeting in Armenia: Black Holes: the largest energy sources in the Universe - 30 June - 4 July 2014 (€665.60 fee covered by ICRANet);
- ) IRAP Ph.D. Erasmus Mundus Workshop - Supernovae, Gamma-ray bursts and the induced gravitational collapse May 11-16, 2014 - Les Houches (France)
- ) Zeldovich-100 Meeting, March 10-14, 2014, Minsk, Belarus - Subatomic particles, Nucleons, Atoms, Universe: Processes and Structure - International conference in honor of Ya. B. Zeldovich 100<sup>th</sup> Anniversary (€ 597,45 fee covered by ICRANet);
- ) IRAP Ph.D. Erasmus Mundus School - February 2014 Nice Winter School- February, 23 - March, 2 – 2014 (€360,71 fee covered by ICRANet);
- ) Scientific work in Pescara February 13<sup>th</sup> – February 20<sup>th</sup> (€137,33 fee covered by ICRANet);
- ) Scientific work for mobility period in Nice (€1.427,67 fee covered by ICRANet);
- ) 2013, December 8-13, 27<sup>th</sup> Texas Symposium. Description: Talk given: Black hole mass decomposition in nonlinear electrodynamics and applications. It took place in Texas, USA, on Relativistic Astrophysics. € (1.715,25 fee covered by ICRANet);
- ) IRAP Ph.D. Erasmus Mundus school - September 2<sup>nd</sup> - 20<sup>th</sup>, 2013 (€ 375,40 fee covered by ICRANet);

- ) Second Bego Scientific Rencontre Meeting - May 16th-31st, 2013 - University of Nice "Sophia Antipolis" (France) (€410,10 fee covered by ICRANet);
- ) July 2012: XIII Marcel Grossman Congress. Description: Participation. It took place in Stockholm, Sweden, on General Relativity.

# Bruno Sversut Arsioli



## *Current position:*

IRAP PhD – Erasmus Mundus  
Second Cycle, 2011-2014

## *Scientific Work:*

Blazars and Active Galactic Nuclei; Surveys; High-Energy Emission; Cosmic Rays.

## *Publications:*

- ) Arsioli, B., Padovani, P., Giommi, P.; “High energy peaked blazars as possible counterparts of UHECR”; In preparation.
- ) Arsioli, B., Fraga, B., Giommi, P., Padovani, P., Marrezi, M.; “1WHSP: an IR-based sample of ~1,000 VHE  $\gamma$ -ray blazar candidates”; Astronomy & Astrophysics, in press (2014).

## *Meetings, conferences, seminars, schools:*

- ) SIGRAV Graduate School in Contemporary Relativity and Gravitational Physics, Villa Olmo, Como (Italy), 21-26 May, 2012.
- ) 10<sup>th</sup> Agile Workshops ASDC, Rome Italy. 18, April, 2012.
- ) Erasmus Mundus School, Nice, France, 5-8 June, 2012.
- ) Erasmus Mundus School, Nice, France, 3rd – 19th September, 2012. Presentation; Active Galactic Nuclei: Blazars
- ) Marcel Grossmann meeting, Stockholm, Sweden, 1<sup>st</sup> – 7<sup>th</sup> July, 2012.
- ) Magic AGN WG Meeting, Frascati, 11 to 14 February 2013 ASI Science Data Center, ESRIN
- ) Erasmus Mundus School, Nice, France, 15th - 31st May, 2013. Presentation; Active Galactic Nuclei; Selection scheme for building large samples of HSP blazars (Candidates for TeV detection).
- ) The 2013 yearly ICRANet Scientific Meeting on Relativistic Astrophysics; June 3-21st, Pescara, Italy & Rome, Italy). On the Occasion of the 50th Anniversary of the Kerr solution of the Einstein's equations, in presence of Roy Kerr.
- ) Erasmus Mundus School, Nice, France, 2nd - 21st September, 2013. Prepared Presentation; Active Galactic Nuclei; Building a large sample of HSP blazars, Statistical Properties, Fermi  $\gamma$ -ray counterparts, and Candidates for TeV detection.
- ) Yerevan, Armenia - 1<sup>st</sup> Scientific ICRANet Meeting in Armenia: Black Holes: the largest energy sources in the Universe - 30 June - 4 July 2014 – (€ 548,35 fee covered by ICRANet);
- ) Zeldovich-100 Meeting, March 10-14, 2014, Minsk, Belarus - Subatomic particles, Nucleons, Atoms, Universe: Processes and Structure - International conference in honor of Ya. B. Zeldovich 100<sup>th</sup> Anniversary (597,43 fee covered by ICRANet);

- ) IRAP Ph.D. Erasmus Mundus School - February 2014 Nice Winter School- February, 23 - March, 2 – 2014 (€338,71 fee covered by ICRANet);
- ) Bologna High Energy Meeting (Boheme) 2014 – April 7<sup>th</sup> to 9<sup>th</sup> (€ 249,80 fee covered by ICRANet);
- ) IRAP Ph.D. Erasmus Mundus Workshop - Supernovae, Gamma-ray bursts and the induced gravitational collapse May 11-16, 2014 - Les Houches (France) (€381,30 fee covered by ICRANet);
- ) 2013 yearly ICRANet Scientific Meeting on Relativistic Astrophysics on the Occasion of the 50<sup>th</sup> Anniversary of the Kerr solution of the Einstein's equations June 3-19, 2013 – ICRANet (€ 597,26 fee covered by ICRANet);
- ) IRAP Ph.D. Erasmus Mundus school - September 2<sup>nd</sup>- 20<sup>th</sup>, 2013 – Nice (€172,87 fee covered by ICRANet);