Staff and Visiting Scientists
at the Pescara Center

ICRANet Faculty Staff

- Belinski Vladimir (ICRANet)
- Bianco Carlo Luciano (Università di Roma “Sapienza” and ICRANet)
- Ruffini Remo (Università di Roma “Sapienza” and ICRANet)
- Vereshchagin Gregory (ICRANet)
- Xue She-Sheng (ICRANet)

Belinski Vladimir

Position: Research Supervisor at the National Institute for Nuclear Physics (INFN, Rome, Italy) and member of ICRANET Faculty Staff (Pescara, Italy).

Period covered: March 1990 – October 10, 2007 (INFN)

October 10, 2007 – present (ICRANET)

I. Scientific Work

Cosmology: The study of the general solution of gravitational equations with cosmological singularity of an oscillatory chaotic structure (the so-called BKL singularity). Investigation of the properties of this solution and of the influence of different kinds of matter on its character.

Astrophysics: Construction of exact solutions for the motions of gravitating shells and its intersections. Chaotic behaviour of the intersecting shells. Applications to the stellar clusters.

Exact solutions of Einstein and Einstein-Maxwell equations: The theory of gravitational solitons and the mathematical aspects of the Inverse Scattering Method in General Relativity . Construction of the exact solutions of physical interest.

Quantum Fields: Analysis of the behaviour of the Quantum Fields in Black Hole space-time and in accelerated systems from the point of view of canonical and algebraic Quantum Field Theory.

II. Conferences and educational activity

Conferences:

The 10th Italian Conference on General Relativity and Gravitational Physics, Bardonecchia, Italy,

September 1-5, 1992. Plenary Talk “Gravitational Topological Charge and Gravibreather”. Proceedings ed. M.Cerdonio et al., page 37, World Scientific, (1994).

International Conference “Birth of the Universe and Fundamental Physics”, Rome, May 1994. Plenary talk “Gravitational Topological Charge”. Lectures Notes in Physics, vol. 455, ed. F. Ochionero, Springer, (1995).

The Seventh Marcel Grossman Meeting (MG7), Stanford, USA, July 24-30, 1994. Chairman of the “Exact solutions” parallel session. Two talks: (i) Plenary talk “Gravitational Topological Charge and the Gravibreather” and (ii) parallel session talk "On the existence of black hole evaporation". Proceedings, ed. R.Jantzen, G. Mac Keiser and R.Ruffini, World Scientific (1996), pages 96, 900.

The Eighth Marcel Grossman Meeting (MG8), Jerusalem, Israel, June 22-27, 1997. . Chairman of the "Quantum Fields in Curved Space Time" parallel session. Two parallel sessions talks: "On the turbulence near cosmological singularity" (together with A.Kirillov and G.Montani) and "On the theory of the Unruh effect" (together with B.Karnakov, V.Mur and N.Narozhny). Proceedings, ed. T.Piran and R.Ruffini, World Scientific (1999), pages 612, 788.

International European conference "Journees Relativistes 99", Weimar, Germany, September 12-17. Plenary talk: "Quantum Fields in Accelerated Frames"(together with N.Narozhny, A.Fedotov, B.Karnakov and V.Mur), Ann. Phys (Leipzig), vol. 9, p.199 (2000).

The Second ICRA Network Workshop "The Chaotic Universe", Rome-Pescara, February 1-5, 1999. The talk "Chaos in Cosmology". Advances Series in Astrophysics and Cosmology, ed. Fang Li Zhi and R.Ruffini, World Scientific, vol.10, p.350.

The Third ICRANet Workshop "Electrodynamics and Magnetodynamics around Black Holes",Rome-Pescara, July 12-24, 1999. The talk "Quantum Field in Rindler space" (together with N..Narozhny, A.Fedotov, B.Karnakov and V.Mur).

The Ninth Marcel Grossman Meeting (MG9), Rome, July 2-8, 2000. Chairman of the "Quantum Fields" parallel session.

The Tenth Marcel Grossman Meeting (MG10), Rio de Janeiro, July 20-26, 2003. Chairman of the "Quantum Fields" parallel session.

The 8th Italian-Korean Symposium on Relativistic Astrophysics, Rome-Pescara, August 18-23, 2003. The talk "Boundary conditions in the Unruh problem"

The 1st Italian-Sino Workshop on Cosmology and Relativistic Astrophysics, Rome-Pescara, July 7-17, 2004. The talk "On the chaotic motion of the gravitating shells" (instead of announced talk on the influence of viscosity in cosmology).

The 2nd Italian-Sino Workshop on Relativistic Astrophysics, Pescara, June 10-20, 2005. The talk "On the equilibrium state for two charged masses in General Relativity".

The 9th Italian-Korean Symposium on Relativistic Astrophysics, Seoul, July 19-24, 2005. Invited talk "On the Equilibrium of two Charged Masses in General Relativity", Journ. Korean Phys. Soc., vol. 49, p.732 (2006)

The Bego Scientific Recontres, Nice, February 6-17, 2006. Three invited lectures on the black hole evaporation phenomenon.

The 3rd Italian-Sino Workshop on Relativistic Astrophysics, Pescara, June 10-20, 2006. The talk "Equilibrium configuration of two charged masses in General Relativity" (together with G.Alekseev).

The 1st Stueckelberg Workshop on Relativistic Field Theories, Pescara, June 25-July 1, 2006. The talk "New developments in Einstein-Maxwell Theory: non-perturbative approach".

Eleventh Marcel Grossman Meeting (MG11), Berlin, July 23-29, 2006. Chairman of the "Quantum Fields" parallel session. Invited review paper for Proceedings: G.Alekseev and V.Belinski "Superposition of Fields of two Reissner-Nordstrom Sources", in press.

XII Brazilian School in Gravitation and Cosmology, Rio de Janeiro, September 2006. Five invited lectures under the title "Quantum fields in black hole spacetime and in accelerated sistems", V. Belinski, AIP Conference Proceedings, Ed. M.Novello and S. Bergliaffa, 910, 270, (2007).

Workshop "Key Problems in Theoretical Cosmology", April 23-28, 2007, Cargese, Institut D'Etudes Scientifiques De Cargese. Invited talk on the exact solution for the equilibrium configuration of two static Reissner-Nordstrom sources (together with G.Alekseev).

The 10th Italian-Korean Symposium on Relativistic Astrophysics, Pescara, June 25-30, 2007. Talk on the static equilibrium state of two Reissner-Nordstrom sources (together with G.Alekseev).

The 4th Italian-Sino Workshop on Relativistic Astrophysics, Pescara, July 20-30, 2007. Talk on the electric force lines in the equilibrium configuration of two Reissner-Nordstrom sources (together with G.Alekseev, A.Paolino and M.Pizzi).

Work With Students and Diploma thesis supervision:

14. M.Pizzi (PhD degree, in progress)

15. A.Paolino (PhD degree, in progress)

Other teaching activity:

The course of lectures in Cosmology for the PhD students delivered in Physics Department, Rome University "La Sapienza" during 1990-1998.

III. Service activities

Coordination of the collaboration between ICRANet and Russian physicists.

Bianco Carlo Luciano

Position:

- Research fellow ("Assegnista di Ricerca") at Physics Department of University "La Sapienza", Roma, Italy.
- Member of ICRANet Scientific Committee
- Member of IRAP-PhD Faculty
- Member of ICRANet Faculty

Period covered: 2005 – 2007

I Scientific Work

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

II Conferences and educational activities

Conferences and Other External Scientific Work

Gave the following invited lectures:

1. 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.
2. C.L. Bianco; Equations of motion and beaming in Gamma – Ray Bursts; *1st Cesare Lattes Meeting*, Mangaratiba (RJ), Brazil, 1 March 2007.
3. 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.
4. 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.

Work With Students

- Students of the IRAP-PhD program at University "La Sapienza", Rome, Italy: Maria Grazia Bernardini, Letizia Caito, Maria Giovanna Dainotti, Roberto Guida.

- Students of the First three years degree Thesis (“Tesi di Laurea triennale”) in Physics at University “La Sapienza”, Rome, Italy: Eliana La Francesca, Francesco Alessando Massucci.
- Students of the Final Degree Thesis (“Tesi di Laurea Vecchio Ordinamento”) in Physics at University “La Sapienza”, Rome, Italy: Letizia Caito, Walter Ferrara.

Diploma thesis supervision

1. 2005. External supervisor of the First three years degree thesis (“Tesi di laurea triennale”) in Physics by Francesco Alessandro Massucci at University “La Sapienza”, Rome, Italy.
2. 2006. External supervisor of the Degree thesis in Physics by Letizia Caito at University “La Sapienza”, Rome, Italy.
3. 2006. Thesis advisor of the IRAP-PhD Degree Thesis by Maria Grazia Bernardini at University “La Sapienza”, Rome, Italy.

Other Teaching Duties

5. 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.
6. 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 year 2007/2008.

Ruffini Remo

Position: Director of ICRANet

Period: 2005 -

Personal: Born: La Brigue, France, May 17, 1942.

Married: Anna Imponente, one son: Jacopo

Italian citizen, U.S. Permanent Resident

Academic Qualification: Professor, Chair of Theoretical Physics

Institution: University "La Sapienza", Home: via Savoia 37

P.za A. Moro 5 - 00185 Roma 00198 Roma

Phone:-39-06-8413703 Phone: -39-06-4991-4304

Fax:-39-06-4454992

e-mail: ruffini@icra.it

Curriculum Vitae:

- Doctorate in Physics, University of Rome, 1966.
- Postdoctoral fellow Mainz Academy of Sciences. Hamburg, Fed. Republic, Germany, 1967.
- Postdoctoral fellow Palmer Physics Lab. Princeton University, N.J., 1967-68.
- Member Institute for Advanced Study, Princeton, N.J., 1968-70.
- Instructor, Princeton Univ., 1970-71.
- Assistant Professor, Princeton University, 1971-74.
- Member Institute for Advanced Study, Princeton, N.J. 1974-76 .
- Visiting professor Kyoto University (Japan), 1975.
- Visiting professor University of Western Australia, Nedlands (Australia), 1975.
- Professor University of Catania, Italy, 1976-78.

- **Professor, Chair of Theoretical Physics, University of Rome "la Sapienza", 1978-**
- Member Council of Center. International Physics, Bogotà, Colombia, 1984-
- President International Center Relativistic Astrophysics (ICRA), 1985-
- Director of ICRANet, 2005-
- Member of Task Force Scientific Use of Space Station NASA, Washington, 1986-88.
- Chairman International Organizing Committee of Marcel Grossmann Meetings, 1984-
- Member International Forum on the Scientific Use of Space Station, Washington, 1986-90.
- Member of Consiglio Ricerche Astronomiche, Rome, 1987-91.
- Co-Chairman Italian-Korean Meetings on Relativistic Astrophysics, Rome and Seoul, 1987-
- Chairman William Fairbanks Meetings, 1990-
- President of the Scientific Committee of the Italian Space Agency, Rome, 1989-93.
- Member of the Board of ENEA, 2004-
- Co-Director Advanced Series in Astrophysics and Cosmology-World Scientific, Singapore, 1986
- Editor Internat. Jour. Modern Phys. D World Scientific Singapore, 1992-
- Editor of the series "The Marcel Grossmann meetings on relativistic Field Theories", 1985-
- Co- Editor of the Series" Italo-Korean meetings on Relativistic Astrophysics".
- Member Sigma Xi.
- Member Italian Physical Society.
- Founding Member of European Physical Society.
- Member of Euroscience
- Fellow recipient:
    - Cressy Morrison award of the New York Academy of Sciences , 1972.
    - Fellow of the American Physical Society 1974-
    - Alfred P. Sloan Foundation fellow, 1974-76.

- Space Scientist of the Year Award, 1992.
- Honorary Professor of University of Kirghizia 1998-

Main Scientific Publications:

Coauthor, among others, of the following books:

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

Vereshchagin Gregory

Position: former: PhD Student, actual: researcher

Period covered: 2005-2007

I Scientific Work

Published 9 articles in refereed journals, 6 articles in the proceedings of international conferences, delivered 15 talks at international conferences, participated in seminars of ICRA and ICRANet

Research topics: electron-positron plasma, neutrino in cosmology, dark energy, early universe

II Conferences and educational activities

Xth Marcel Grossmann Meeting (ICRANet)

1st and 2nd Stueckelberg Workshops (ICRANet)

1st Bego scientific rencontre (ICRANet)

3rd and 4th Italian-Sino Workshops on Relativistic Astrophysics (ICRANet)

9th and 10th Italian-Korean Symposiums on Relativistic Astrophysics (ICRANet)

Cesare Lattes Meeting on GRBs, Black Holes and Supernovae (ICRANet)

A Century of Cosmology, San Servolo, Venice, Italy, 27-31 August, 2007

Loops '05, Potsdam, Golm, Max-Plank Institut für Gravitationsphysik (Albert-Einstein-Institut), 10-14 October 2005.

Spacetime in action: 100 years of relativity, Pavia University, 29 March – 2 April 2005.

Visiting Belorussian State University from 12th of December 2005 to 11th of January 2006. The project was successfully completed and the results were presented at the seminar.

Work With Students

Gustavo de Barros

Other Teaching Duties

Lectures at the 1st Stueckelberg Workshop

Lectures at the 2nd Stueckelberg Workshop

Lectures at the 1st Bego Scientific Rencontre

Lectures at the 1st Cesare Lattes Meeting

Xue She-Sheng

Position: Staff

Period covered: 2006 – 2007

I Scientific Work

(1) Neutron stars and black holes:

``Electrodynamics for Nuclear Matter in Bulk'', Int. Journ. Mod. Phys. D 16 (2006) 1-9

``Neutral nuclear core vs super charged one'', Proceedings MGXI Marcel Grossmann meeting (MG11), Berlin , World scientific (2007).

``Analytical treament of the electrodynamics for Neutron stars'', AIP Conf. (2007) and Phy. Rev. D (in preparation)

(2) Vacuum polarization and plasma oscillations:

``Electron-positron oscillation in a weak electric field under critical value'' , Phys. Lett. A 371(2007) 399

``Theory of electron-positron pair production and its application '' (I) and (II) for Phys. Rep.

``Electron and positron pair production in nonuniform electric field '' , Phys. Rev. D (in preparation)

``Electron-positron pair production in a marcoscopic object Q/M'', Phys. Let. B (in preparation)

(3) Gamma-Ray Bursts:

`` Theoretical predictions of spectral evolution of short GRBs'', the Proceedings of the "Swift and GRBs: Unveiling the Relativistic Universe", in Venice (Italy), June 5-9, 2006 (IL NUOVO CIMENTO Vol. 121 (2006) 1477

``GRB 050315: A step toward the uniqueness of the overall GRB structure'', Astrophys.J. 645 (2006) L109-L112

`` GRB970228 as a prototype for short GRBs with afterglow'', Nuovo Cim. 121B (2006) 1439-1440

`` The Blackholic energy and the canonical Gamma-Ray Burst'', AIP Conf.Proc. 910 (2007) 55-217

`` The role of GRB 031203 in clarifying the astrophysical GRB scenario '', the proceedings of "The 6th INTEGRAL Workshop - The Obscured Universe", Moscow, 2006, ESA Special Publication, SP-622, in press .

`` GRB 050315: A step in the proof of the uniqueness of the overall GRB structure'', AIP Conf.Proc. 836 (2006) 103-108

`` Equations of motion, initial and boundary conditions for GRB'', J.Korean Phys.Soc. 49 (2006) 722-731

II Conferences and educational activities

Conferences and Other External Scientific Work

Presenting talks and posters in international ICRANet meetings:

MGXI Marcel Grossmann meeting (Berlin)

1st Cesare Lattes meeting (Brazile)

10th Italian-korean and 4th Italian-Chinese meetings (Pescara)

1st and 2nd Stuekelberg Workshop (Pescara)

XIIth Brazilli Scholl of Cosmology and Gravitation (Brazile)

And international Conferences:

"Swift and GRBs: Unveiling the Relativistic Universe", in Venice (Italy), June 5-9, 2006

"Century of Cosmology", in Venice (Italy), August 27-31, 2007

Work With Students

B. Patricelli, M. Rotondo, Noemi., G. De Barros, Jorge rueda, Juracy Luis, L.J. Rangel Lemos, G. Vereshchagin , and the research group of Gamma Ray Bursts :

M. G. Bernardini, L. Caito, M.G. Dainotti and R. Guida

Diploma thesis supervision

IRAP PhD. Faculty, thesis supervision and reading and examination

M. Rotondo, G. Vereshchagin

Work With Postdocs

C.L. Bianco, L. Vitagliano , F. Fraschetti

Work With the Director R. Ruffini and External Professors

V.S. Popov, H. Kleinert, Hoang Ngoc Long, Pascal Chardonnet,

III Service activities

Within ICRANet

Participating organization of ICRANet meetings: the 10th Italian-Korean meeting and 4th Italian-Chinese meeting on Cosmology and Relativistic Astrophysics

Editor of American Institute of Physics Conference Proceedings ``4th Italian-Chinese meeting on Cosmology and Relativistic Astrophysics''

Participating organization of ICRANet Seminars

Outside ICRANet

External Professor of Chinese Academy and University.

Adjunct Professors of the Faculty

Arnett David
(Subramanyan Chandrasektar- ICRANet Chair)
University of Arizona, Tucson, USA

Coppi Bruno
Massachusetts Institute of Technology

Damour Thibault
(Joseph-Louis Lagrange- ICRANet Chair)
IHES, Bures sur Yvette, France

Della Valle Massimo
Osservatorio di CapodiMonte, Italy

Ehlers Jurgen
(Pascual Jordan-ICRANet Chair)
Albert Einstein Institute, Golm, Germany

Everitt Francis
(William Fairbank-ICRANet Chair)
Stanford University, USA

Fang Li-Zhi
(Xu-Guangqi-ICRANet Chair)
University of Arizona, USA

Greiner Walter
Frankfurt Institute for Advanced Studies, Germany

Gurzadyan Vahe
University of Yerevan and ICRANet

Jantzen Robert
(AbrahamTaub-ICRANet Chair)
Villanova University USA

Rosquist Kjell
(Karl Gustav Jacobi-ICRANet Chair)
Stockholm University, Sweden

Kleinert Hagen
(Richard Feynmann-ICRANet Chair)
Freie Universität Berlin

Kerr Roy
(Yevgeny Mikhajlovic Lifshitz-ICRANet Chair)
University of Canterbury, New Zeland

Nagar Alessandro
Istituto Nazionale di Fisisca Nucleare (INFN) Turin
and Insititut des Hautes Etudes Scientifiques (IHES) paris

Novello Mario
(Cesare Lattes-ICRANet Chair)
CBPF, Rio de Janeiro, Brasil

Panagia Nino
ESA, Space Telescope Science Institute, USA

Pian Elena
INAF – Osservatorio Astronomico Trieste

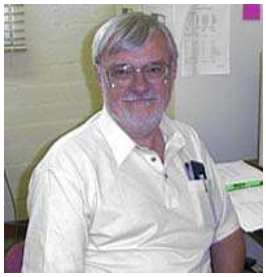
Popov Vladimir
ITEP, Russia

Punsly Brian Mathew
California University, Los Angeles USA

Titarchuk Lev
US Naval Laboratory, USA

Zerilli Frank
University of Washington, USA

Arnett David



Position: Regents Professor of Physics and Astronomy at the University of Arizona
Period covered: November 2007- present

I Scientific Work

Arnett's current work involves development of a theory of turbulent convection in stars, using the results of three-dimensional time dependent simulations as an aid to closure of the Reynolds-decomposed mean field equations. The goal is to replace the phenomenological approach now used with better physics, and generate a new generation of stellar evolutionary predictions, for all stars that evolve significantly, from birth to death as white dwarf, neutron star or black hole.

II Conferences and educational activities

Conferences and Other External Scientific Work

Colloquium: New Results on Convection in Stars, ICRA, University of Rome "La Sapienza", October, 2007
Invited lectures: 1. Stellar Evolution 2. Supernovae as Stellar Explosions 3. New Speculations on Gravitational Collapse
ICRA, October, 2007

Work With Students

1. Kris Eriksen (UofA): Simulations of Young Supernova Remnants (dissertation in astrophysics)

Diploma thesis supervision

Casey Meakin, obtained his PhD degree (astrophysics)
Thesis: Simulations of an Oxygen Burning Shell in a Pre-Supernova

Other Teaching Duties

Astro 535 (Stellar Evolution)
Astro 597 (Computational Astrophysics)

Work With Postdocs

I Postdoc: Casey Meakin(UofA/UofChicago FLASH Center): we are now setting up a major new simulation to use the new computer cluster acquired by Frank Timmes' group at Arizona State University

2 Postdoc: Carlo Luciano Biano (ICRA): nucleosynthesis predictions from gamma-ray bursts (GRB's)

III Service activities

Within ICRANet

1. Lectures to students in Rome (see above)
2. Discussions with senior scientists in Rome and Pescara

Outside ICRANet

1. Member, National Research Council Committee on "The Impact of High Performance Computing on Selected Fields", 2006-2007
2. Establishing a Collaborative Program on Stellar Convection and Explosions, with Sumner Starrfield and Frank Timmes at ASU and UofA

Biographical Sketch for William David Arnett (2007)

Present: Regents Professor, Steward Observatory, U. of Arizona, Tuscon, AZ 85721

William David Arnett was born in 1940 and raised in rural western Kentucky. He obtained a B.S. degree at the University of Kentucky and M.S. and Ph.D. degrees at Yale University, all in physics. A.G.W. Cameron was his dissertation advisor. Arnett was a postdoctoral fellow with Willy Fowler at Caltech, and was a frequent visitor to Fred Hoyle's Institute of Theoretical Astronomy at Cambridge University. He has had many collaborators, including Don Clayton and David Schramm. Arnett performed the first numerical simulations of (1) stellar collapse to form both neutron stars and black holes, (2) explosive nucleosynthesis in stars, and (3) thermonuclear supernova explosions. His research has focused on the interplay between physics and computer simulation as a means to astronomical understanding, and is currently working on a variety of topics related to stellar evolution and nucleosynthesis, including a theory of turbulent convection and the use of high-energy-density lasers to attain stellar conditions in the laboratory.

Education: U. of Kentucky, B.S., 1961; Yale, M.S. 1963, Ph.D. 1965, Physics

Previous: B. and E. Sunny Distinguished Service Professor, Astronomy & Astrophysics, Physics, and Enrico Fermi Institute, University of Chicago, 1986-89

Professional Societies: AAS; APS (Fellow); IAU; AAAS (Fellow).

Fellowships and Awards:

Yale Distinguished Graduate Award, Physical Sciences (with J. W. Truran), 1980

A. von Humboldt Prize (Senior Scientist), 1981

Member, National Academy of Sciences (1985-)

Member, American Academy of Arts and Sciences (1985-)

Member, Aspen Center for Physics (1997-2007)

Recent Professional Activities (since 1996):

Hubble Space Telescope Allocations Committee, Subpanel, 1996, 2000

NRC Committee, Scientific Readiness of the National Ignition Facility (NIF), 1996-98

NRC, Physics Survey Overview Committee (decadal), (T. Appelquist, chair), 1999-01

DOE, Scientific Users Committee, NIF, 2002- AAS, Astronomy Education Board, 2000-2003

NRC Committee on High Energy Density Plasma Physics, 2000-2003

NRC Committee on the Impact of High Performance Computing on Select Fields, 2006-7

Monograph:

Supernovae and Nucleosynthesis, Princeton University Press, 1996, 598 pages.

Chardonnet Pascal

Position: Professor of Physics at the University of Savoie

Period covered: 2000-Present

I Scientific Work:

In recent years Chardonnet's research focus on the astrophysical and cosmological studies of Gamma-ray bursts, the problem of propagation of ultra-high energy cosmic-rays, the galactic center 511 keV annihilation line and the puzzle of dark matter. It includes the studies of galactic magnetic field influences of the cosmic rays propagation using numerical simulation with a recent local galactic survey.

II Conferences and educational activities

Conferences and Other External Scientific Work

- Integral Meeting in Moscow July 2006
- Massive Stars as cosmic engines: IAU Symposium Hawaii December 2007

Work With Students

1. Valentino Laquaniti, a new graduate student.
2. Julien Aublin, from the AUGER TEAM, committee member, oral exam

Diploma thesis supervision

Alvise Mattei, obtained his PhD degree

Thesis: The propagation of the ultra high energy cosmic rays.

Other Teaching Duties

Phys907 (general relativity and cosmology)

Phys502 (Lagrangian mechanics)

Phys405 (Introduction to Astrophysics)

Phys302 (Special Relativity)

Phys301 (Introduction to quantum mechanics)

Phys201 (Classical mechanics)

Work With Postdocs

Anton Baushev (stay in my group from Sept 2005-Aug 2006)

III Service activities

Within ICRANet

Organizing the MG11 Marcel Grossmann Meeting

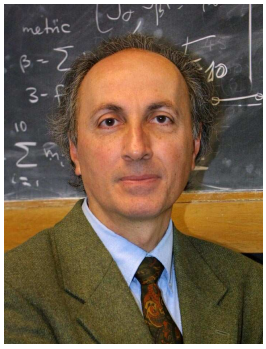
Member of the Faculty of IRAP PhD Program

Outside ICRANet

Member of GDPR PCHE

Member of Specialist committee of University of Savoie

Damour Thibault



ne le 7 fevrier 1951, Lyon (France).

Diplomes.

1970-1974 : Ecole Normale Superieure de la rue d'Ulm.

1970-1972 : Matrise de Physique.

1973 : DEA de Physique Theorique, option Relativite et Theorie des Champs.

1974 : These de Doctorat de 3eme cycle, specialite Physique Theorique (Universite de Paris VI, 5 juin 1974): ``Theorie classique de la renormalisation''. Agregation de Sciences Physiques.

1979 : These de Doctorat d'Etat es Sciences Physiques (Universite de Paris VI, 10 janvier 1979): ``Quelques proprietes mecaniques, electromagnetiques, thermodynamiques et quantiques des trous noirs''.

Carriere.

1970-1974 : Ecole Normale Superieure de la rue d'Ulm.

1973-1974 : Laboratoire de Physique Theorique, Institut Henri Poincare, Paris.

1974-1975 : Jane Eliza Procter Fellow a l'Universite de Princeton, U.S.A. (Physics Department).

1975-1976 : European Space Agency International Fellow a l'Universite de Princeton, U.S.A. (Physics Department).

1976-1977 : Service National -- Centre d'Etudes Theoriques de la Detection et des Communications, Base Aerienne 117, Paris.

1977-1981 : Attache de Recherche au CNRS (Groupe d'Astrophysique Relativiste, ER 176, Observatoire de Paris-Meudon).

1981-1985 : Charge de Recherche au CNRS.

1985-1992 : Directeur de Recherche (2eme classe) au CNRS. [Mise en disponibilite aupres de l'IHES en 1989-1992; Demission du CNRS le 30/09/92].

1989 (octobre) : Professeur Permanent a l'Institut des Hautes Etudes Scientifiques.

Distinctions.

1978 : Laureat de la Fondation Singer-Polignac.

1980 : Medaille de bronze du CNRS.

1984 : Prix de physique theorique ``Paul Langevin'' de la Societe Francaise de Physique.

1990 : Grand Prix de l'Academie des Sciences, France (Prix Mergier-Bourdeix).

1994: First Award de la Gravity Research Foundation (USA).

1994: Membre correspondant de l'Academie des Sciences.

1996: Medaille Einstein de l' Albert Einstein Gesellschaft, Berne (Suisse).

1999: Membre de l'Academie des Sciences (Section de Physique) et Membre de l'Institut de France.

2005: Cecil F. Powell Memorial Medal de l'European Physical Society.

Responsabilites.

1986-1994 : Directeur-adjoint de l'UPR 176 du CNRS -- Departement d'Astrophysique Relativiste et de Cosmologie de l'Observatoire de Paris-Meudon.

1991-1995: Membre nomme du Comite National de la Recherche Scientifique (Centre National de la Recherche Scientifique).

1991-1996 : Team member and chairman of the theory group du projet de mission spatiale STEP (Satellite Test of the Equivalence Principle) propose a l'Agence Spatiale Europeenne dans le cadre des Medium Size Projects M2 et M3.

1994-1997 : Membre du Fundamental Physics Topical Team (TT-5), puis du Fundamental Physics Advisory Group (FPAG), de l'Agence Spatiale Europeenne.

1994-2000 : Membre du Comite des Programmes Scientifiques du Centre National d'Etudes Spatiales.

1995-1997 : Membre du Conseil Scientifique de l'Ecole Normale Superieure.

Conferences plenieres invitees.

Mars-Avril 2005: Spacetime in Action, 100 Years of Relativity, Pavia (Italie).

Avril 2005: Geometry and Physics after 100 Years of Einstein's Relativity, Potsdam (Allemagne).

Avril 2005: Einstein 1905-2005, Seminaire Poincare, Paris (France).

Mai 2005: A Century from Einstein Relativity: Probing Gravity Theories in Binary Systems, Villa Olmo, Como (Italie).

Juin 2005: Salon Europeen de la Recherche et de l'Innovation, Paris (France).

Juillet 2005: 13th General Conference of the European Physical Society: Beyond Einstein, Physics for the 21st Century, Berne (Suisse).

Juillet 2005: Albert Einstein Century International Conference, Paris (France).

Septembre 2005: 28th Spanish Relativity Meeting (ERE05) ``A Century of Relativity Physics", Oviedo (Espagne).

Septembre 2005: Galileo Galilei Institute Inaugural Conference, Florence (Italie).

Septembre 2005: Cosmic Strings and Fundamental Strings, Paris (France).

Octobre 2005: Reunion du GDR 2062 ``Gravitation et Experience dans l'Espace'', Paris (France).

Octobre 2005: Geometry and the Universe, Stony Brook (USA).

Novembre 2005: Polyakovfest, Princeton (USA).

Novembre 2005: Neuvieme rencontre ``Physique et Interrogations fondamentales'': Einstein et les horizons de la physique, BNF, Paris (France).

Decembre 2005: 23ieme Conseil Solvay de Physique: ``The Quantum Structure of Space and Time'', Bruxelles (Belgique).

Decembre 2005--Janvier 2006: 23rd Winter School in Theoretical Physics: ``Symmetries and Dynamics'', Jerusalem (Israel).

Fevrier 2006: First Bego scientific rencontres of the ICRA net, Nice (France).

Mars 2006: Confronting Gravity: a Workshop to Explore Fundamental Questions in Physics and Cosmology, Saint Thomas, Virgin Islands (USA).

Juillet 2006: 11th Marcel Grossmann Meeting, Berlin (Allemagne).

Aout 2006: Eurostrings and Greenfest, Cambridge (UK).

Aout 2006: First Cambridge-Mitchell Texas Conference and Gibbonsfest, Cambridge (UK).

Octobre 2006: Boltzmann Conference, Munich (Allemagne).

BOOKS.

Popular Books

1. T. DAMOUR, J.C. CARRIERE; Entretiens sur la multitude du monde. 2002. Editions Odile Jacob, Paris, 241 pages.

2. T. DAMOUR Si Einstein m'etait conte 2005. Le Cherche-Midi, Paris, 237 pages. [Traduction anglaise: Once Upon Einstein, 2006, AK Peters, Boston (USA).]

3. F. BALIBAR, T. DAMOUR 2005. Einstein, double CD, Editions De Vive Voix (Paris), Collection Science.

Scientific Books

1. J. TRAN THANH VAN, T. DAMOUR, E. HINDS, J. WILKERSON (Editors); Perspectives in Neutrinos, Atomic Physics and Gravitation. Proceedings of the XIIIth Moriond Workshop (Villars-sur-Ollon, Suisse, January 30 - February 6, 1993). 1993. Editions Frontieres, Gif-sur-Yvette, 589 pages.

2. J. TRAN THANH VAN, Y. GIRAUD-HERAUD, F. BOUCHET, T. DAMOUR, Y. MELLIER (Editors); Fundamental Parameters in Cosmology. Proceedings of the XXXIIIrd Rencontres de Moriond (Les Arcs 1800, France, January 17-24, 1998). 1998. Editions Frontieres, Gif-sur-Yvette, 452 pages.

3. A. ASPECT *et al.* Einstein Aujourd'hui 2005. EDP Sciences (Les Ulis) et CNRS Editions (Paris).

4. T. DAMOUR, O. DARRIGOL, B. DUPLANTIER, V. RIVASSEAU, Editors Einstein, 1905-2005. Poincare Seminar 2005. 2006. Birkhuser Verlag, Basel (Suisse).

Della Valle Massimo

Position: Associate Astronomer INAF-Arcetri

Period covered: 1990-2007

I Scientific Work

The reseach activity spans several fields in the observational Astrophysics:

a) Supernovae (local and at high redshifts) and measurement of the cosmological parameters;

b) Gamma-ray bursts and their afterglows

c) Supernova/GRB connection);

d) Novae (galactic and extragalactic);

e) Distance Scale.

Curriculum Vitae

1976. High School diploma, Brescia.

1983. Laurea in Astronomia, Universita' di Padova (Summa cum Laude). Supervisor: Prof. L. Rosino.

1984. Fellow at the Asiago Astrophysical Observatory

1985. PhD student at the Byurakan Observatory (ex-URSS). Supervisor: Prof. Ambartsumian.

1988. PhD in Astronomy Universita' di Padova. Supervisors: Prof. L. Rosino, e M. Capaccioli

1989. Post-Doc at SISSA, Trieste

1990. Fellow at the European Southern Observatory, La Silla, Cile.

1994. Fellow at the European Southern Observatory, Munchen, Germany

1995. Assistant Professor at the Astronomy Dept., Universita' di Padova.

1999. Associate Astronomer Associato at the Arcetri Astrophysical Observatory

2007. Associate to the International Center for Relativistic Astrophysics Network, 65122, Pescara

2008. Full Professor at the Osservatorio Astronomico di Capodimonte, Napoli Sabbatical leaves (> 1 mese)

1994, 1996, 1997, 1999, 2003, 2005. Visiting Scientist, European Southern Observatory, Garching.

1995, 1997, 2000, 2002, 2004. Visiting Scientist, Space Telescope Science Institute, Baltimore.

1998, 2001, 2003. Visiting Scientist, European Southern Observatory, Santiago.

2006. Visiting Scientist, Department of Astronomy, Graduate School of Science, University of Tokyo, Japan

2006, 2007. Visiting Scientist, KAVLI Institute, Santa Barbara, Università della California.

2007. Visiting Scientist, Dark Cosmology Centre, Niels Bohr Institute, Copenhagen

Teaching

1989. Lecturer alla SISSA: ``The Cosmological Distance Ladder" .

1992. Visiting Professor, Centro de Astrofisica da Universidade do Porto, Portugal: ``The Late Stages of the Stellar Evolution" (grad. level).

Assistant Professor for Esercitazioni di Astronomia I (Padova, Astronomy Dept. a.a.1993/94; 1994/95; 1995/96; 1996/97).

Assistant Professor for Laboratorio di Fisica II (Padova Astronomy Dept. a.a. 1995/96).

Assistant Professor for Astrofisica (Padova Astronomy Dept. a.a. 1996/97).

Professor in charge of Astronomia Generale (Padova Physics Dept. a.a. 1996/97; 1997/98)

Professore at the Physics Dept. Ferrara University for Tecniche Osservative in Astronomia (a.a. 2002/03; 2003/04; 2005/06; 2006/2007; 2007/2008).

Lecturer in 11 national and international PhD Schools.

Outreach

Author of many popular papers published on Astronomia, Coelum, Le Stelle and National newspapers.

Ehlers Jürgen

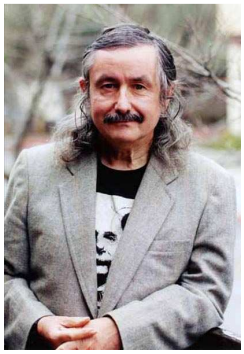
Jürgen Ehlers, born 1929, studied physics, mathematics, and philosophy at the university of Hamburg. There he received his PhD in 1958 and habilitated himself in 1962. After working at the universities of Kiel, Syracuse (New York) and Hamburg he joined the Graduate Research Center of the South West in Dallas/USA (1964-65) and then went to the university of Texas at Austin where he became Professor of Physics in 1967. In 1971 J.E. accepted a position at the Max Planck Institute Physics and Astrophysics in Munich where he led a relativity group. From 1995 to 1998 he was director of the Max Planck Institute of Gravitational Physics in Golm/Potsdam which had been founded on his initiative.

J.E. is a member of several German academies. From 1995 to 1997 he was elected President of the "International Society of General Relativity and Gravitation". In 2002 he was awarded the Max Planck Medal of the German Physical Society, in 2005 the University of Padova honoured him with the Golden Volta Medal. In the same year he was appointed honorary fellow of the Inter-University-Center for Astronomy and Astrophysics (IUCAA, India).

Some publications since 2000

- Ehlers, J., *Foundations of Gravitation and Lens Theory*, Ann. d. Physik (Leipzig) 9, 307 (2000)
- Ehlers, J., E.T. Newman, *The Theory of Caustics and Wave Front Singularities with Physical Applications,* J. Math. Phys., 41, 3344 (2000)
- Ehlers, J., *General Relativity and Gravitation*, in Encyclopaedia of Astronomy and Astrophysics, Macmillan Publ., London (2000)
- Ehlers, J., *Einstein's Theory of Spacetime and Gravity*, Mathematics in the 21st Century, A.A. Ashom et.al (eds.), World Scientific Singapore (2001).
- Ehlers, J., E.T. Newman, S. Fritelli, *Gravitational Lensing from a Spacetime Perspective*, p. 281 in Revisiting the Foundations of Relativistic Physics, A. Ashtekar et.al (eds.), Kluver Acad. Publ. (2003)
- Ehlers, J., R. Geroch, *Equations of Motion of Small Bodies in Relativity*, Annals of Physics 309, 232 (2004)
- Ehlers, J., *The Newtonian Limit of General Relativity*, in Encycl. of Mathematics and Mathematical Physics, Elsevier (2006)

Everitt Francis



Position: Professor (Research) at the
W.W. Hansen Experimental Physics Laboratory (HEPL)

Period covered:

I Scientific Work

Research Interests

- Experimental Gravitational Physics
- Theoretical Gravitational Physics

POSITION ON THE RELATIVITY MISSION

- Principal Investigator since 1981
- Co-Principal Investigator (1966-81)

EDUCATION

- Ph.D. in Physics, Imperial College (1959)
- DIC (Diploma, Imperial College) (1958)
- A.R.C.S. (Associate, Royal College of Science) (1955)
- B.Sc. in Physics, Imperial College, London (1955)

ACADEMIC EXPERIENCE

- 1982-present - Professor, High Energy Physics Laboratory, W.W. Hansen Laboratories of Physics, Stanford University, Stanford, California
- 1974-82 - Adjunct Professor, High Energy Physics Laboratory, W.W. Hansen Laboratories of Physics, Stanford University, Stanford University, Stanford California
- 1968-74 - Senior Research Physicist, High Energy Physics Laboratory, W.W. Hansen Laboratories of Physics, Stanford University, Stanford, California
- 1962-68 - Research Associate, Stanford University
- 1960-62 - Research Associate, and Instructor, University of Pennsylvania
- 1959-60 - Research Associate, Imperial College, London
- 1955 - Visiting Research Fellow, Physikalisch-Technische-Bundensanstalt, Braunschweig, West Germany

APPOINTMENTS

- Chair of the COSPAR (International Committee on Space Research) Scientific Commission on Fundamental Physics in Space (1996)
- Council Member and Director of Research, International Center for Relativistic Astrophysics, Rome (1985-present)
- NASA selection as Principal Investigator, Gravity Probe B Relativity Mission Program (1981-present)
- Member, NASA Astrophysics Council (1985-1992)
- Member, National Research Council, Space Science Board Committee on Gravitational Physics (1978-81)
- Member, NASA Management and Operations Working Group in Shuttle Astronomy (1976-79)

UNIVERSITY COMMITTEES

- Academic Senate Committee on Adjunct Professoriate(1981-82)

AWARDS

- Marcell Grossman Award (1997)
- Guggenheim Fellowship (1976-77)
- Tyndall Prize, Emperial College, London (1955)

PUBLICATIONS

- 94 research and review papers
- 5 books and 2 in preparation

Read more about Dr. Everitt in a Marshall Space Flight newsletter profile

Fang Li-Zhi

Position: Professor of Physics and Astronomy at the University of Arizona

Period covered: 1992- present

I Scientific Work

In recent years Fang's research focus on non-equilibrium, non-linear problems of cosmology. It includes the turbulence-like dynamical behavior and log-Poisson hierarchical evolution of the mass and velocity fields of cosmic baryon fluid; the origin of the leaks in Ly-alpha absorption spectrum of high redshift quasars; the growth of ionized and heated region around photon sources in the early universe, and the 21 cm signal from the epoch of reionization.

II Conferences and educational activities

Conferences and Other External Scientific Work

Colloquium: Scaling in Cosmology, Institute of Physics, Academia Sinica,

Taipei, May 30, 2007

Invited lectures: 1. the standard cosmological model

2. primordial perturbations

3. nonlinear evolution of intergalactic medium (IGM)

4. probe of dark energy with large scale structures

Taipei School/Workshop on Large Scale Structures of the Universe National Center for Theoretical Science, May 28 – June 2, 2007

Work With Students

1. Alan Cooney, a new graduate student.
2. Susan Barke, final defence
3. Veron Miller, committee member, oral exam
4. Bauman, Sky, committee member
5. Jessica Uscinski, committee member, oral exam
6. Ziran Wu, committee member, oral exam

Diploma thesis supervision

Hu Zhan, obtained his PhD degree

Thesis: The Large-Scale Structure of the Universe in One Dimension.

Other Teaching Duties

Phys571 (general relativity and cosmology)

Phys195A (creation of the universe)

Phys596F (Cosmology and particle astrophysics)

Work With Postdocs

I Postdoc: Tong-Jie Zhang (stay in my group from June 1, 2005 - May 31, 2006)

Publications in this period: X-ray emission of baryonic gas in the universe:

luminosity-temperature relationship and soft band background,

ApJ, 642, 625 (2006)

2. . Postdoc: Xin-He Meng (stay in my group from June 1, 2004 - Jan 31, 2005)

Publications in this period: Codimension Two Branes in Einstein-Gauss-Bonnet

Gravity, Phys.Rev. D71 (2005) 024023

3. Postdoc: Ji-Ren Liu (stay in my group from Aug 8 2006 - present)

Publications in this period: 1. Is the cosmic UV background fluctuating at

redshift z ~6 ? ApJL, 645, 1, (2006)

III Service activities

Within ICRANet

Organizing the 4th Italian-Sino workshop

Member and Chair of Stering committee

Outside ICRANet

Editor, International Journal of Modern Physics A (2003 -)

Editor, Modern Physics Letters A (2003 -)

Curriculum Vitae

Li-Zhi Fang (Western version) or Fang Lizhi (Chinese version) was born in Beijing in 1936. He received his diploma of physics from Beijing University in 1956, and immediately joined the Chinese nuclear project as a junior researcher. For his speaking out on freedom of thought and expression, Fang was dismissed, and transferred to the University of Science and Technology of China (USTC) as an assistance in 1958 and lecturer in 1961. During the Cultural Revolution (1966-1976), he was sent to do labor in the country side and in the coal mine. In 1978, Fang became a full professor of physics and later the Vice- President of the USTC in 1984. Owing the student movement in 1986, Fang was once again dismissed, and moved to the Beijing Astronomical Observatory in 1987, and then headed a group of theoretical astrophysics from 1987 to 1989. Following the bloody event on Tiananmen Square on June 4th 1989, Fang was named the most wanted counter-revolutionary criminals by the Chinese authorities. He then sought sanctuary in the US Embassy in Beijing, where he remained for over a year.

When he got out of China in 1990, he stopped at the Cambridge University as a Guest Professor of the Royal Society, and in the following year at the Institute for Advanced Study of Princeton as a Director's Visitor. Since 1992, Fang joined the faculty of the University of Arizona as a Professor of Physics.

Fang's research has covered nuclear physics, laser physics, and a variety of topics in theoretical astrophysics and cosmology. He has published more than 330 research papers, and also numerous popular articles. He is the author, co-author and editor of 24 books. Fang has been a member of many scientific committees, including the council of the International Centre for Theoretical Physics (Trieste), Commission No.2 of the International Union of Pure and Applied Physics (IUPAP) and 1990-1993 Chair of the Commission C19 of IUPAP.

Fang has served on many organizations of human rights, including the International League for Human Rights, Committee of Concerned Scientists, and he was 1994 Chair of the APS Committee on International Freedom of Scientists.

Fang was a member of the Chinese Academy of Science. He is a fellow of the American Association for the Advancement of Science, and Founding Fellow of Arizona Arts, Sciences and Technology Academy. Fang is the recipient of numerous awards, including the 1978 (Chinese) National Award of Science and Technology, 1985 First Award of the Gravity Research Foundation, 1987 (Chinese) National First Award for Scientifically Popular Article, 1989 Human Rights Award of Robert F Kennedy, 1991 Freedom Award of International Rescue Committee and the 1996 Nicholson Medal of the American Physical Society.

Greiner Walter

Position: Founding Director Frankfurt Institute for Advanced Studies

Period covered:

I Scientific Work

II Conferences and educational activities

Conferences and Other External Scientific Work

Very many

Work With Students

With very many

Diploma thesis supervision

Ph-thesis, all together more than 150

Work With Postdocs

More than 120 Alexander von Humboldt-fellows

III Service activities

Within ICRANet

Close collaboration with Prof. Ruffini

-many joint interests

-talks at Frankfurt and Pescara

Gurzadyan Vahe

I Scientific Work

Chaos in Astrophysical and Cosmological Problems

The problems include**:** chaos in non-linear systems, N-body dynamics, stellar dynamics, cosmic microwave background radiation, large scale structure of the universe, observational cosmology.

II Conferences and educational activities

Reports at Marcel Grossmann meetings (1997-), IAU General Assembly (2003), ICRANet workshops, lectures at Bego workshop for IRAP PhD students (2006), lectures at Brazilian school on cosmology (2003).

Work With Students

Supervisor of IRAP PhD students.

G.Yegorian

H.Khachatryan

III Service activities

Within ICRANet

Member of Steering committee

Outside ICRANet

Co-editor, International Journal of Modern Physics D (2001 -)

Co- editor, book series Advances in Astronomy and Astrophysics, Tayler & Francis, Cambridge Scientific Publications (1996-).

Vahe Gurzadyan was born in Yerevan, Armenia (then USSR) in 1955. He graduated Yerevan State University, Chair of Theoretical Physics (1977). Was postgraduate student at Dept. Theoretical Physics, Lebedev Physics Institute, Moscow (1977-1980; 1980 PhD.), DSci, in Theoretical and mathematical physics (1988).

Since 1980 Gurzadyan worked as Research Fellow (Leading Research Fellow since 1989) in Dept. of Theoretical Physics, Yerevan Physics Institute, Yerevan; he is the head of Cosmology Unit since 1989. In 1989 he lectured on dynamical systems in 4 Universities in Japan. He had visiting positions in several Universities: University of Sussex (1996-1997) and since 2001 in ICRA, University of Rome "La Sapienza", ICRANet.

The main topics of his research are: the chaos in non-linear systems, N-body dynamics, stellar dynamics, Cosmic Microwave Background radiation, observational cosmology. He has published 2 monographs, 120 articles, has edited 4 books.

He chaired the Scientific Organizing Committee of workshop "Ergodic Concepts in Stellar Dynamics", Geneva, 1993; the Local Organizing Committee of workshops "The Chaotic Universe", Rome, 1999; “Fermi and Astrophysics”, Rome-Pescara, 2001; IX Marcel Grossmann meeting, Rome 2000. Chair of 'Chaos' Parallel sessions at Marcel Grossmann Meetings, Jerusalem, 1997, Rome, 2000, Rio de Janeiro, 2003, Berlin, 2006.

He is co-editor of **Intern.Journ.Modern Phys D** (World Scientific) and of book series '**Advances in Astronomy and Astrophysics**' (Taylor & Francis, UK).

He was member **EUROSCIENCE** Governing Board (elected 1998, reelected 2002).

Jantzen Robert

Position: professor, Villanova University

I Scientific Work

Collaboration with Donato Bini, Christian Cherubini, Andrea Geralico on mathematical properties of stationary spacetimes.

II Conferences and educational activities

Conferences and Other External Scientific Work

MG11 ICC chair and editor
MG12 ICC chair

Other Teaching Duties

Full time teaching in Mathematical Sciences Dept of Villanova University

Robert T. Jantzen: Curriculum Vitae

STATISTICS:

Born in 1952

PRESENT POSITION (since 1983)

Professor, Department of Mathematical Sciences, Villanova University, Villanova, PA 19085-1699 USA

E-Mail: robert.jantzen@villanova.edu

Tel: (610)519-7335 Fax: (610)519-6928

Web: www.homepage.villanova.edu/robert.jantzen

EDUCATION:

Ph.D. in Physics, University of California at Berkeley, 12/78; thesis title: Gauge Invariant Perturbation Theory in Spatially Homogeneous Cosmology (thesis advisor: Abraham Taub)

A.B. in Physics (with highest honors), Princeton University, 9/74

PROFESSIONAL EXPERIENCE:

Postdoctoral Research Fellow

Harvard College Observatory, Center for Astrophysics, Cambridge, MA, 8/81-7/83 (with D. Eardley: NSF grant no. PHY-80-07351)

Visiting Researcher

Max-Planck-Institut für Astrophysik, Munich, 10/80-6/81 (with J. Ehlers, B. Schmidt, M. Walker)

NATO Postdoctoral Fellow

University of Rome, 9/79-8/80 (with R. Ruffini)

Postdoctoral Research Associate

University of North Carolina at Chapel Hill, 9/78-9/79 (with J.W. York, Jr.)

Summer Research Assistant

U.C. Berkeley, 7/78-9/78 (with J.E. Marsden, NSF grant)

Research Assistant

U.C. Berkeley, 9/76-6/78 (with A.H. Taub, NSF grant no. MCS-76-21525)

Dupont Graduate Fellowship

U.C. Berkeley, 9/74-8/76

HONORS:

Bernard Friedman Memorial Prize in Mathematics, U.C. Berkeley, 6/78

Shuichi Kusaka Memorial Prize in Physics, Princeton, 6/74

Member of Honor Societies: Phi Beta Kappa, Sigma Xi

MEMBERSHIPS:

American Physical Society (APS)

International Society on General Relativity and Gravitation (GRG)

TeX Users Group

RESEARCH INTERESTS:

Lie groups and differential geometry: applications to physics

Classical general relativity:

Spatially homogeneous and self-similar spacetimes and mathematical cosmology

Spacetime splitting approaches, observer-measurement interpretation of spacetimes, gravitoelectromagnetism

CONFERENCES:

Participated in General Relativity and Gravitation Meetings: GR8 (1978) -- GR14 (1995), GR17 (2004)

Participated in Marcel Grossmann Meetings on General Relativity: MG2 (1979) -- MG11 (2006)

Kjell Rosquist

Position: Professor of Theoretical Physics at Stockholm University

Period covered: 2006-2007

I Scientific Work

Einstein's general theory of relativity is the basis for understanding many, if not most, of the astrophysical phenomena which are observed today. Black holes, in particular, are described by the Kerr-Newman family of solutions to the Einstein-Maxwell field equations. This family has a very special multipole structure with an infinite sequence of moments. Due to the black hole uniqueness theorems, the Kerr-Newman structure can be regarded as the end point of gravitationally collapsing astrophysical systems. Part of Rosquist's interest in this area is an attempt to characterize the Kerr-Newman solutions within a wider class of asymptotically flat systems.

There is an important general relativistic relation between the three quantities a, Q and M known as the Christodoulou-Ruffini mass formula. For black holes, the formula gives the available amount of energy which can be extracted. This is of relevance for macroscopic systems such as those responsible for gamma ray bursts. The mass formula is also expected to be important in the non-black hole case (i.e. not dominated by M), in particular in the microscopic domain as well. The situation in the non-black hole case is however less well-known. Rosquist is now working to fill in this gap. In particular, it is important to understand the relation between the two terms in the mass formula. This is an issue which can be investigated in the framework of the Kerr-Newman family of solutions.

RESEARCH ACTIVITY

Research in Theoretical cosmology, Relativistic Astrophysics, Gravitational waves and Dynamical systems (chaotic and integrable).

The relevant papers are published in several journals, including Physical Review, General Relativity and Gravitation, Classical and Quantum Gravity, Journal of Mathematical Physics, Nuovo Cimento and Celestial Mechanics and Dynamical Astronomy.

II Conferences and educational activities

Conferences and Other External Scientific Work

Lectures and talks at the University of Rome and at conferences:

Bego Scientific Recontres, Nice, February 2006

Eleventh Marcel Grossmann Meeting on General Relativity (MG11), Berlin, July 2006

Italy-Korea meeting, Pescara, June 2007

18th International Conference on General Relativity and Gravitation **(**GR18), Sydney, July 2007

Work With Students

Mikael von Strauss, new graduate student – Project on interacting fields using the theory of general relativity

Diploma thesis supervision

Tomas Bylund – Carter's constant

Other Teaching Duties

Courses taught in the academic year 2006-2007:

Relativistic quantum mechanics (advanced undergraduate level)

Quantum Mechanics (for teacher students)

General Relativity (advanced undergraduate)

Work With Postdocs

Lars Samuelsson at the Nordita Institute, Stockholm. – Work on Carter's constant and other aspects of relastivistic astrophysics

III Service activities

Within ICRANet

Adviser at various scientific committees

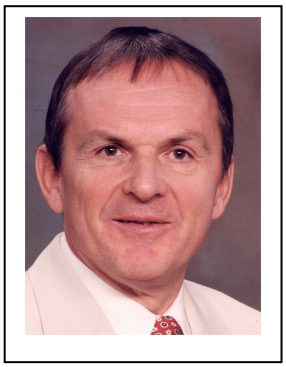
Outside ICRANet

Member of undergraduate teaching committee at the Dept of Physics, Stockholm University.

External examiner of licentiate thesis 2006 of Thomas Bäckdahl, Linköping University, Sweden.

V Other

Collaboration with R. Ruffini, V. Belinski and others on aspects of general relativity, in particular field energy and interactions including both gravity and electromagnetic fields.



Kleinert Hagen

Position: Professor of Theoretical Physics

Sub-Project Applied Quantum Field Theory

Period covered: 1964-2007

I Scientific Work

1. Theory of Defect-Induced Phase Transitions
2. Quark and String Physics
3. Quantum Mechanics
4. Classical and Statistical Mechanicsin Spaces with Curvature and Torsion
5. Classical Statistics
6. Quantum Statistics
7. Polymer Physics
8. Field Theory of Liquid Crystals
9. Fluctuation Effects in Membranes
10. Superfluid Helium 3
11. Superconductivity
12. Mathematical Physics
13. Stochastic Physics
14. Supersymmetry in Nuclear Physics
15. Financial Markets

II Conferences and educational activities

Conferences and Other External Scientific Work

Hundreds of conferences.

Work With Students

Hundreds of students.

Diploma thesis supervision

Hundreds of theses.

Other Teaching Duties

All courses of Theoretical Physics

Work With Postdocs

Many Postdocs financed by FU-Berlin, Humboldt Foundation, DFG, and DAAD.

III Service activities

Within ICRANet

Lecturing and exchange of ideas. Organization of big Marcel-Grossmann Conference 2006.

Research and collaborations.

Outside ICRANet

Teaching and research, writing textbooks.

VITA

Name: Hagen Michael KLEINERT

Birth: June 15, 1941, Festenberg, Germany

Nationality: German Family: married, one son

Study and Degrees:

1960 -1963: TH Hannover; there 1962 -BS with fist class honors 1963 -1964: Georgia Institute of Technology, Atlanta, Georgia, USA; there 1964 -Master of Science
Fall 1964: Washington University, St. Louis, USA
Spring 1965: University of Wisconsin, Madison, USA
1965 -1967: University of Colorado, Boulder, Colorado, USA; there 1967 -Ph. D.
Spring 1969: Habilitation at the Free University Berlin
Positions:

Fall 1963 – Research Assistant at EURATOM, Ispra, Italy
June 1967 – Research Associate at the University of Colorado
Jan. 1968 – Assistant Professor at the University of Montana
Oct. 1969 – Associate Professor at the Free University Berlin
Okt. 1976 – Full Professor at the Free University Berlin
Since 1965 – Numerous invited lectures at summer schools and conferences
Since 1968 – Numerous visiting professorships,
in particular:
CERN – summer 1968, spring 1970, summer 1970, spring 1971, summer 1971, spring 1972,
California Institute of Technology – winter 1973/1974, spring 1977, spring 1980, spring 1983, spring 1986
Los Alamos – winter 1976/77
University of Kioto – winter 1979
Berkeley – spring 1980
UC Santa Barbara – winter und spring 1982/83
UC San Diego – winter und spring 1985/86
University of Miami – winter und spring 1989/90
Princeton University – winter und spring 1993
Chair Offers:

University Wuppertal (declined) 1975, University Dortmund (declined) 1994, Technical University Braunschweig (declined) 1996, Technical University Graz (declined) 1999Member of Russian Academy of Creativity since 2001.

Max-Born Medal 2008.

Kerr Roy

Position: **Emeritus Professor**

I Scientific Work

Research Interests

General Relativity, Gravitation and Relativistic Theories.

Roy Kerr: CV

Roy Kerr retired from his position as Professor of Mathematics at the University of Canterbury in February of this year. He had been in the Department for twenty-two years, and its Head for the past ten. In this note I shall record some of the facts and legends known and circulated about his life and career so far.

Roy first came to the attention of New Zealand's mathematical community in 1950, when as a pupil of St Andrew's College in Christchurch he sat the University Entrance Scholarship. In those days Scholarship Mathematics consisted of two papers, and was marked out of 600; Roy got 298. This disappointing result was almost entirely explained by the fact that he'd turned up in the afternoon for one of the papers when it had in fact been scheduled in the morning. Despite this oversight, he did get a scholarship, and in his first year at Canterbury College, attended the lectures for Stage III. Regulations, however, permitted him to sit only the stage II examinations. Next year he was sitting in on the Masters lectures.

His undergraduate career was not given wholly to mathematics and science; he admits to having played a lot of billiards, and in 1952 represented his College in boxing at the Easter Tournament, as a light-welterweight. I recall W.W. Sawyer, then a lecturer at Canterbury, expressing alarm and dismay over Roy's pugilism, on the ground that he didn't want the best brain he'd encountered in a student scrambled by a well-thrown punch; but history seems to confirm that Roy came to no lasting harm over it.

In 1955 he received a MSc with first class honours, and went to Cambridge with a Sir Arthur Sims Empire Scholarship. He was awarded a PhD in 1960, for a thesis on the equations-of-motion problem in general relativity. This work appeared in a series of three uncharacteristically long papers in *Nuovo Cimento*, and although later overshadowed by the Kerr metric, was extensively cited. He went on to a post-doctoral post at Syracuse University, and then to work with a US Air Force relativity group at Wright-Patterson Field, in Ohio. The USAF were interested in antigravity devices; one of the tasks of the relativity group was to assess and report on such devices proposed to it by inventors. Roy remarked to me once that these devices usually involved massive flywheels spinning at high speeds; most of the inventors specified that these flywheels be made of gold or platinum.

In 1962 Roy moved to the University of Texas in Austin, where a relativity group had been formed. In his first year he produced the work which led to the two-page article in *Phys Rev Letters* describing the Kerr metric. Here we enter the realm of legend. In an interview printed in the University of Canterbury *Chronicle* of 11 March (on which this article relies heavily), Roy says that, although he knew that his metric represented the gravitational field of a rotating star, he

did not then realise how important it was going to be. Some insight on how the realisation dawned may be got from a lively if somewhat disingenuous article on the First Texas Symposium on Relativistic Astrophysics published in *Physics Today* (August 1989). Although this describes an interesting attempt to rob Roy of the fruits of his labours, which seems to indicate that they were thought to be valuable, it also says that Roy's paper was not in fact mentioned by the summarizers at the end of the conference. But when recognition came, it was emphatic. Chandrasekhar, in his Ryerson Lecture of 1978, said: "In my entire scientific life, extending over forty-five years, the most shattering experience has been the realization that an exact solution of Einstein's equations of general relativity, discovered by the New Zealand mathematician Roy Kerr, provides the *absolutely exact representation* of untold numbers of massive black holes that populate the universe".

Roy returned to New Zealand in 1971, to the chair he has just vacated. He brought to us in Canterbury a sharpened sense of belonging to the international mathematical community and attracted many visitors, but his major contribution to the Department began when in 1983, after Gordon Petersen's early retirement, he took over the headship. Roy's style as HOD was at once uncompromising and dashing; in a series of moves which affronted some of our colleagues in other departments, who had grown comfortable with the traditional Canterbury view that Mathematics should be a low-cost department devoted to service teaching, he contrived to reduce student-staff ratios, encourage research, and equip the department with a computer system at the sort of cost hitherto associated with spectrographs. Morale rose markedly. In many respects Roy was an unusual figure in University administration; he had very little patience for the practice of wrapping self-interest up in politically correct pieties, and was perfectly willing to offend entrenched privilege. But he was successful, and we are the better for his efforts, and we love him for them.

Roy has received many awards, culminating in the Hughes Medal of the Royal Society of London in 1984, and has given many invited lectures. His retirement comes at a time when his remarkable faculties seem unimpaired. He has put it about that he will sail the seven seas in the ocean-going yacht he has recently bought. Perhaps new legends will arise; we await with interest, and wish him success and happiness.

Novello Mario

Position: Professor

Period covered: 2003-2007

I Scientific Work

1. **Cosmological redshift and nonlinear electrodynamics propagation of photons from distant sources.**
Herman J.Mosquera Cuesta, Jose M. Salim, M. Novello . Oct 2007. 5pp. Temporary entry
e-Print: **arXiv:0710.5188** [astro-ph]

2. **Constructing Dirac linear fermions in terms of non-linear Heisenberg spinors.**
M. Novello . May 2007. Europhysics Letters (2007)

e-Print: **arXiv:0705.2692** [astro-ph]

3. **A Spinor theory of gravity and the cosmological framework.**
M. Novello (Rio de Janeiro, CBPF) . Jan 2007. 10pp.
Published in **JCAP 0706:018,2007**.
e-Print: **gr-qc/0701120**

4. The Nature of Lambda and the mass of the graviton: A Critical view.
Jean-Pierre Gazeau (Paris U. VII, APC) , Mario Novello (Rio de Janeiro, CBPF) . Oct 2006. 39pp.
e-Print: **gr-qc/0610054**

5. **Cosmological Effects of Nonlinear Electrodynamics.**
M. Novello, E. Goulart, J.M. Salim (Rio de Janeiro, CBPF) , S.E. Perez Bergliaffa (Rio de Janeiro State U.) .
Oct 2006. 10pp.
Published in **Class.Quant.Grav.24:3021-3036,2007**.
e-Print: **gr-qc/0610043**

Abstract and Postscript and PDF from arXiv.org (mirrors: au br cn de es fr il in it jp kr ru tw uk za aps lanl)

6. **Spinor Theory of Gravity.**
M. Novello (Rio de Janeiro, CBPF) . Sep 2006. 9pp.
e-Print: **gr-qc/0609033**

7. **Nonlinear electrodynamics and the Pioneer 10/11 spacecraft anomaly.**
Jean Paul Mbelek (Saclay) , Herman J. Mosquera Cuesta (Rio de Janeiro, CBPF & ICTP, Trieste) , M. Novello, Jose M. Salim (Saclay) . CBPF-NF-029-06, Aug 2006. 8pp.
Published in **Europhys.Lett.77:19001,2007**.
e-Print: **astro-ph/0608538**

8. **A toy model of a fake inflation.**
Mario Novello (Rio de Janeiro, CBPF) , E. Huguet, J. Queva (APC, Paris & Paris U., VI-VII) . Apr 2006.
Published in **Phys.Rev.D73:123531,2006**.
e-Print: **astro-ph/0604475**

9. **Cosmology and gravitation, XIth Brazilian School of Cosmology and Gravitation, Mangaratiba, Rio de Janeiro, Brazil, 26 July - 4 August 2004.**
Mario Novello, (ed.), Santiago E.Perez Bergliaffa, (ed.) (Rio de Janeiro, CBPF & Rio de Janeiro State U.) .

2005. 323pp.
AIP Conf.Proc.782.
11th Brazilian School of Cosmology and Gravitation 19-23 Jul 2004, Rio de Janeiro, Brazil.

LaTeX(US) | LaTeX(EU) | Harvmac | BibTeX

10. **Non-linear electrodynamics in cosmology.**
M. Novello, S.E. Perez Bergliaffa (Rio de Janeiro, CBPF & Rio de Janeiro State U.) . 2005. 12pp.
Prepared for 11th Brazilian School of Cosmology and Gravitation, Rio de Janeiro, Brazil, 19-23 Jul 2004.
Published in **AIP Conf.Proc.782:306-317,2005**. Also in *Rio de Janeiro 2004, Cosmology and gravitation* 306-317

11. **Cosmological effects of nonlinear electrodynamics.**
M. Novello (Rio de Janeiro, CBPF) . 2005. 10pp.
Prepared for 6th Alexander Friedmann International Seminar on Gravitation and Cosmology, Cargese, Corsica, France, 28 Jun - 3 Jul 2004.
Published in **Int.J.Mod.Phys.A20:2421-2430,2005**.

12. **The Mass of the graviton and the cosmological constant puzzle.**
Mario Novello (Rio de Janeiro, CBPF) . Apr 2005.
Published in **PoS IC2006:009,2006**.
e-Print: **astro-ph/0504505**

13. **Extended born-infeld dynamics and cosmology.**
M. Novello (Rio de Janeiro, CBPF) , Martin Makler (Rio de Janeiro, CBPF & Rio de Janeiro Observ. & Rio de Janeiro Federal U.) , L.S. Werneck (Valongo Observ.) , C.A. Romero (Paraiba U.) . Jan 2005. 13pp.
Published in **Phys.Rev.D71:043515,2005**.
e-Print: **astro-ph/0501643**

II Conferences and educational activities

Conferences and Other External Scientific Work

XI Brazilian School of Cosmology and Gravitation (August 2004)

IV Escola de Cosmologia e Gravitação (June 2007)

XII Brazilian School of Cosmology and Gravitation (September 2006)

Logic and Time (In honor of K. Godel) (August 2007)

I workshop ICRA-Br/CBPF (October 2007)

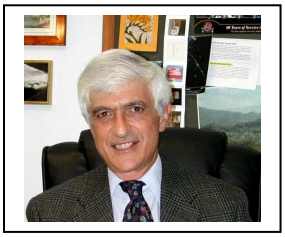
Diploma thesis supervision

Erico Goulart; Maria Borba; Aline N. Araújo; Josephine Rua; Vicente Antunes; R P Neves

Work With Postdocs

Santiago E.P. Bergliaffa; Herman Mosquera Cuesta; Leo Medeiros

Panagia Nino



Position: Visiting Professor

Period covered: 4-8 June 2007

I. Scientific Work

Research (13 refereed articles in 2007) on

- Cosmology
- Supernovae and Gamma-ray Bursts
- Stellar Populations
- Planetary Nebulae

II Conferences and educational activities (2007)

Invited Reviews

"Ultraviolet Observations of Supernovae" presented at Aspen Winter Conference "SN 1987A, 20 Years After", Aspen, CO, 18-23 February, 2007

"SN 1987A, 20 Years After" presented at 2007 Frascati Workshop "Multifrequency Behaviour of High Energy Cosmic Sources", Vulcano Island, 28 May-2 June, 2007

Lecture Series

"Supernovae and Observational Cosmology", Seven Lectures: (1) Introduction to Supernovae, (2) Supernova 1987A in the Large Magellanic Cloud, (3) Radio Supernovae, (4) Core Collapse Supernova Progenitors, (5) SNIa Rates and Progenitors, (6) The Hubble Constant, i.e. the Local Expansion Rate of the Universe, (7) An Accelerating Universe, **October 3-25, 2007**, given at Department of Physics, University of Ferrara, Italy

Colloquia and Public Talks

2007 January 30 - Public Lecture to the schools "The Rise and Fall of the Stellar Empire", Space Telescope Science Institute, Baltimore, MD.

2007 March 13 - CAS Seminar "Supernova 1987A: Twenty Years After", JHU Physics and Astronomy Department, Baltimore, MD.

2007 May 19 - Public Lecture "The Universe as seen with the Eyes of Hubble", Gratton Prize, Villa Mondragone, Frascati, Italy.

2007 May 24 - Colloquium “Ultraviolet Supernovae”, Osservatorio Astrofisico di Catania, Catania, Italy.

2007 June 4 - Colloquium “Supernova 1987A: Twenty Years Later”, ICRANet Institute, Pescara, Italy

2007 June 7 - Colloquium “Supernova 1987A: Twenty Years Later”, Physics Department, University of Rome “La Sapienza”, Rome, Italy

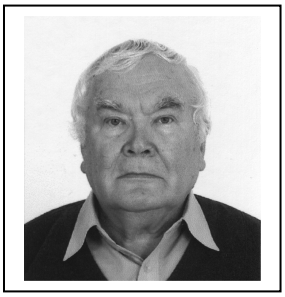
2007 October 8 - Colloquium “Supernova Progenitors”, Observatory of Brera, Merate (LC), Italy.

2007 October 19 - Colloquium “Supernova 1987A: Twenty Years Later”, RSSD, ESTEC, Noordwijk, The Netherlands.

2007 October 22 - Colloquium “Radio Observations of Supernovae”, Institute of Radioastronomy INAF, Bologna, Italy.

2007 October 23 - Colloquium “Supernova 1987A: Twenty Years Later”, Observatory of Bologna INAF, Italy.

Popov Vladimir



Position: leading scientist at the Institute of Theoretical and Experimental Physics

Period covered: 1970 - present

I Scientific Work

In recent years Popov's research focus on: the theory of multiphoton ionization of atoms and ions, including the relativistic generalization of Keldysh ionization theory for the case of multicharged ions; the process of electron-positron pair production from vacuum by the field of optical and X-ray lasers; development of the "imaginary time" method in theory of relativistic tunneling; application of the Feynman method of disentangling of noncommuting operators to non-stationary problems of quantum mechanics.

II Conferences and educational activities

1. International Conference on Theoretical Physics, Lebedev Institute, Moscow, April 2005

2. Conferences MEPHI - 2000, 2002, 2005, 2006, 2007, Moscow Engineering Physical Institute, Moscow

3. XVIII Conference "Fundamental Atomic Spectroscopy", Zvenigorod, October 2007

III Service activities

Within ICRANet

- No -

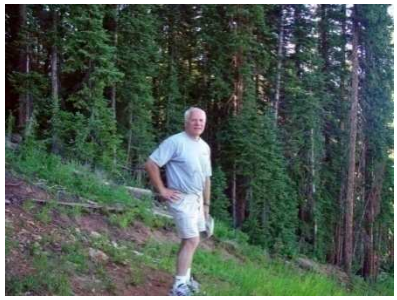
Outside ICRANet

Journal of Experimental and Theoretical Physics, member of editorial board (1993 -)

Curriculum vitae

Popov Vladimir Stepanovich was born in Moscow in 1932. He received his diploma of physics from Moscow State University in 1955, joined the Institute of Theoretical and Experimental Physics (ITEP, Moscow) in 1959 as a junior researcher, received PhD in 1961, became senior researcher in 1964 and leading researcher in 1987. He received Doctor of Science (Physics) degree with the thesis "Atomic states at Z > 137 and tunnel effects in intense fields" in 1974 at ITEP, and became Professor in 1993. He also taught students in Moscow Physical-Technical Institute from 1964 to 1993, where he gave lectures on classical and quantum electrodynamics, quantum mechanics, theory of coherent states, quantum optics, and mathematical methods of quantum mechanics. Prof. Popov is a member of JETP (Journal of Experimental and Theoretical Physics) editorial board since 1993.

Popov's research has covered atomic and nuclear physics, laser physics, mathematical physics and a variety topics in quantum mechanics. He published more than 150 research papers. His main scientific activities were: theory of atomic processes in intense laser fields (particularly, tunnel and multiphoton ionization of atoms and ions); QED of superstrong Coulomb fields (Z > 137 problem) and spontaneous production of positrons in collisions of heavy nuclei, $Z_1+Z_2 > Z_{cr} \approx 170$; e^+e^- pair production from vacuum by intense electromagnetic fields (Schwinger effect); quasiclassical approximation and 1/n-expansion in quantum mechanics and atomic physics; generalization of the WKB method for quasistationary states and resonances; imaginary time method in problems of tunneling of nonrelativistic and relativistic particles; Zel'dovich effect in atomic and nuclear physics, i.e. rearrangement of atomic spectrum due to strong short-range interaction; hydrogen atom in superstrong magnetic field; higher orders of perturbation theory for Stark effect, anharmonic oscillator and some other potentials; summation of divergent perturbation series in quantum mechanics and field theory; Feynman method of disentangling of noncommuting operators and its application to some non-stationary problems of quantum mechanics.



Titarchuk Lev

Position: Professor of Physics (George Mason University/Naval Research Laboratory)

Period covered: from November 4, 2006 to November 4, 2007

I Scientific Work

Study spectral and timing characteristics of compact objects.

Theory and Observations. A new method of mass determination of Black Holes

II Conferences and educational activities

Conferences and Other External Scientific Work

High Energy Astrophysics Meeting, Moscow, Russia, December, 2006

Radiation Hydrodynamics Meeting, Calcuta, India, February, 2007

Cino-Italian Meeting, Pescara, Italy, July, 2007

Series of lectures on spectral characteristics of compact objects in INAF-IASF, Sezione di Bologna and INAF-IASF, Sezione di Milano, Italy, January and February, 2007

Work With Students

Course of Lectures on High Energy Astrophysics January-February, 2007(University of Ferrara, Italy)

PhD advisor of Andrey Makeev (GMU/NRL) and Jon Determan (GMU/NRL)

Work With Postdocs

Study of Accretion Radiation Hydrodynamics with Dr. R. Farinelli (Unversity of Ferrara, Italy)

Spectral and Timing Characteristics of Compact objects with Dr. N. Shaposhnikov (GSFC, USA)

III Service activities

Within ICRANet

Seminars on Spectral Signatures of Black holes.

V Other

DISSERTATION AND TITLE of DOCTOR of SCIENCE DEGREE:

Radiative Transfer Problems and Formation of the Spectra of X-Ray Sources.

PRESENT POSITION: Research Professor, George Mason University,

Visiting Scientist in Naval Research Laboratory and Exploration of Universe Division of Goddard Space Flight Center, NASA, Visiting Professor of University of Ferrara, Italy

HONORS, and PROFESSIONAL SOCIETY MEMBERSHIP:

National Research Council-NASA Research Associateship Award, 1991,
NASA/ Summer Program Award, 2003, 2004,

Member, American Astronomical Society, 1992-present.

Curriculum Vitae

Lev Titarchuk is a world recognized expert in High Energy Astrophysics, the Radiative Transfer Theory, in Data Analysis and interpretation of X-ray observations of NS and BHC systems. He participated in quite a few approved CGRO, RXTE Guest Investigation Program and NASA APRA Program. In the last four years he with his collaborators has published more than 40 papers in the referred journals.

EDUCATION: Dr. of Sc.(Astrophysics) Leningrad State University, Leningrad (St. Petersburg), USSR June 1989. Prof. Rashid Sunyaev was a consultant Ph.D. (Astrophysics) Space Research Institute (IKI), Moscow, June 1972. Prof. Vladimir Kurt was an advisor.

M.S. (Mathematics) Moscow State University, July 1969.

DISSERTATION AND TITLE of DOCTOR of SCIENCE DEGREE:

Radiative Transfer Problems and Formation of the Spectra of X-Ray Sources.

PRESENT POSITION: Research Professor, George Mason University, Visiting Scientist in Naval Research Laboratory and Exploration of Universe Division of Goddard Space Flight Center, NASA, Visiting Professor of University of Ferrara, Italy

HONORS, and PROFESSIONAL SOCIETY MEMBERSHIP:

National Research Council-NASA Research Associateship Award, 1991, NASA/ Summer Program Award, 2003, 2004, Member, American Astronomical Society, 1992-present.

Lecturers

- Bini Donato — CNR and ICRANet, Italy
- Boccaletti Dino — ICRANet and Università di Roma "Sapienza", Italy
- Chakrabarti Sandip Kumar — Center for Space Physics, India
- Chechetkin Valeri — Keldysh Institute for Applied Mathematics, Moscow, Russia
- Chieffi Alessandro — INAF, Rome, Italy
- Christodoulou Demetrios — ETH, Zurich, Switzerland
- Coullet Pierre — Université de Nice - Sophia Antipolis, France
- Di Castro Carlo — Università di Roma "Sapienza", Italy
- Filippi Simonetta — ICRANet and Campus Biomedico, Italy
- Jing Yi-Peng — Shangai Astronomy Observatory, China
- Kim Sung-Won — Institute of Theoretical Physics for Asia-Pacific, Korea
- Lee Hyun Kyu — Department of Physics, Hanyang University, Korea
- Limongi Marco — INAF, Rome, Italy
- Mester John — Stanford University, USA
- Mignard François — Observatoire de la Côte d'Azur, Nice, France
- Montani Giovanni — ENEA and ICRANet, Italy
- 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
- Punsly Brian — ICRA, Rome, Italy
- Starobinsky Alexei — Landau Institute for Theoretical Physics, Russia

Bini Donato

Position: **Reasercher at the Istituto per le Applicazioni**

del Calcolo, "M. Picone," CNR, via del Policlinico,

137, I-00161 ROMA (Italy).

Period covered: 1995 -today.

I Scientific Work

The main topic of my interest is General Relativity with special attention to the analysis and the interpretation of exact solutions of Einstein's field equations.

In detail I'm interested in 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 quadrupolar structure), gravitational perturbations, gravitational waves.

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

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.

Work With Students

I'm following the studies and researches of I. Nava, supposed to get his degree in Physics in the next year 2008.

Diploma thesis supervision

I've been supervisor of the Diploma thesis of many students at the University of Rome I "La Sapienza": since 1995

G. Spoliti, A. Merloni, C. Germani, C. Cherubini, G. Miniutti, G. Cruciani, A. Geralico, M. De Mattia.

Other Teaching Duties

I'm Contract Professor of Physics since 2004 at the faculty of Medicine of the University Campus Biomedico, in Rome. Since 2007 I'm also Contract Professor of Physics at the Nursery School of the same university.

Work With Postdocs

I'm continuosly working with A Geralico, post-doc student at the University of Rome "La Sapienza."

III Service activities

Scientific collaboration with:

Prof. R. Ruffini (University of Rome, Italy and ICRANet);

Prof. R.T. Jantzen (Villanova Univesity, USA and ICRANet);

Prof. B. Mashhoon (University of Missouri-Columbia and ICRANet);

Prof. S. Filippi (University Campus Biomedico, Rome, Italy and ICRANet).

Dr. C. Cherubini (University Campus Biomedico, Rome, Italy and ICRANet).

Outside ICRANet

Scientific collaboration with:

Prof. F. de Felice (University of Padova, Italy);

Prof. G. Ferrarese (University of Rome, Italy);

Prof. L. Lusanna (INFN Florence, Italy);

Prof. A. Tartaglia (Politecnico of Turin, Italy)

V Other

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

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'm leader of young researchers projects of INDAM (Istituto Nazionale di Alta Matematica)

Title of the project: *Light coordinates and spacetime topography*.

Curriculum vitae

Born: November 27, 1963 in Sabaudia (LT), Italy.

Nationality: Italian.

Status: married with a son, Francesco.

Post Address (home): Via Arciglioni, 12 I-04016 Sabaudia (LT), Italy (permanent).

Phone: +39-0773-511423; mobile : + 39 338 7646752

E-Mail: binidi@icra.it

Languages: Italian, English.

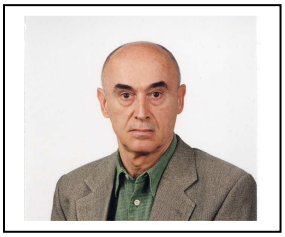
EDUCATION:

[1989] University "La Sapienza" in Rome: Diploma di Laurea in Physics with laude; supervisor: Prof. V. Ferrari . Thesis Title: "On the Ernst equation in General Relativity: Hamiltonian formulation and problems related to the definition of energy of colliding gravitational waves"

[1990-1991] Research fellowship at the Italian Research Council

[1992-1995] PHD in Physics at University "La Sapienza" in Rome.

Boccaletti Dino



Position: Professor of Celestial Mechanics at the University of Rome "La Sapienza" – Department of Mathematics

Period covered: Since November 1th 1987

I Scientific Work

Researches in the field of Physics of Elementary particles (in the first period), Theoretical Astrophysics, Theory of the gravitational waves, Stellar Dynamics, Celestial Mechanics, Mathematical Physics. The relevant papers are published on Nature, Nuovo Cimento B, Physical Review D, Astronomy & Dynamical Astronomy. An aside activity has regarded the history of Astronomy.

II Conferences and educational activities

In the last years communications at meetings on General Relativity and Celestial Mechanics

Work With Students

In the last twenty years many students have been aided at the beginning of their researches on topics of Celestial Mechanics and someone supervised until the doctorate

Diploma thesis supervision

Since 1987 about 70 thesis on topics of Celestial Mechanics

Other Teaching Duties

Member of the "Collegio Docenti" of the "Dottorato in Astronomia" at the University of Rome "La Sapienza" until October 31th 2007. Now member of the Faculty of the IRAP PhD.

Work With Postdocs

Researches in collaboration.

The latest postdoc is still involved in researches in collaboration (application of the technique of the normal forms to the study of galactic potentials).

III Service activities

Within ICRANet

No direct service activities but collaboration in some occasion regarding topics of research of mutual interest

V Other

List of the last five papers published

1) Dino Boccaletti, Francesco Catoni, Roberto Cannata, Paolo Zampetti

Integrating the geodesic equations in the Schwarzchild and Kerr space-times using Beltrami's "geometrical" method – Gen. Relativ. Gravit. (2005) 37; 2261-2273

2) Cinzia Belmonte, Dino Boccaletti, Giuseppe Pucacco

Stability of axial orbits in galactic potentials – Celestial Mechanics and Dynamical Astronomy (2006) 95; 101-116

3) Dino Boccaletti, Francesco Catoni, Vincenzo Catoni

Space-time Trigonometry and formalization of the "Twin paradox" for uniform and accelerated motions – Adv. Appl. Clifford alg. (2007) 17; 1-22

4) Dino Boccaletti, Francesco Catoni, Vincenzo Catoni

Formalization of the "Twin paradox" for non-uniformly accelerated motions - Adv. Appl. Clifford alg. (2007) 17; 611-616

5) Cinzia Belmonte, Dino Boccaletti, Giuseppe Pucacco

On the orbit structure of the logarithmic potential – The Astrophysical Journal (2007) 669; 202-217

Books

Co-author with Giuseppe Pucacco of the two-volumes work – Theory of Orbits (Springer-Verlag)

1. Integrable Systems and Non-perturbative Methods (1996);
2. Perturbative and Geometrical Methods (1999);

devoted to Celestial Mechanics and Stellar Dynamics.

This work has been very succesful (three editions the first volume, two editions the second) and is still at present, used as a textbook for advanced courses in several Universities all around the world.

Chakrabarti Sandip Kumar

Position: Professor, S. N. Bose National Centre for Basic Sciences,

JD Block, Salt Lake, Kolkata 700098, INDIA

and

In Charge, Academic Affairs, Indian Centre for Space Physics

43, Chalantika, Garia Station Road, Kolkata 700084, INDIA

Recent period in which ICRA was visited: July 19-29th, 2006 and Oct. 28-30th, 2007

II Conferences and educational activities

Please see my biodata which contains the whole set of activities, including the recent ones.

Please use them and place them where you find suitable.

Doctorate Students Supervision

11 students submitted Ph.D. Thesis (6 have already received permanent posts in various Institutes and others are in PDF stage).

7 more students are working under my supervision right now.

Other Teaching Duties

teaching on Astrophysical Fluid Dynamics around black holes to Students of SNBNCBS

Work With Postdocs

I have two postdocs (one at SNBNCBS and the other at ICSP)

III Service activities

Within ICRANet :

(a) We are organizing an workshop on Black Holes, Neutron Stars and Gamma Ray Bursts as a satellite meeting (Feb 15th-17th, 2008) just after the Observational Evidence for Black Holes in the Universe conference (Feb 10th -15th, 2008). These are done in collaboration with ICRAnet.

(b) Presented a seminar on the “Physics and Astrophysics of the Boundary Layer of a Black Hole: The Shocking Theory” at the University of Rome, Oct. 29th, 2007.

(c) Collaborated with Dr. S. Mondal, also visiting ICRA in July, 2006 and completed a few papers on for the MG11 meeting

Talks/papers in 2006

'Spectral and Timing Properties of Two Component advective Flows around black holes' at the ICRANET at Pescara, Italy (July, 2006)

Astrophysical black holes: Do they have boundary layers?' Rapporteur talk at the APT1 session at the 11th Marcel Grossman meeting, Berlin (July, 2006)

'Shocking story of Quasi-Periodic Oscillations in Black Hole Candidates' Rapporteur talk at theAPT1 session at the 11th Marcel Grossman meeting, Berlin (July, 2006)

Chairman of the Sessions on `Astrophysical Black Holes' and 'Theoretical Modelsof Observations of black hole candidates' at the 11th Marcel Grossman Meeting in Berlin (July, 2006)

Samir Mandal and Sandip K. Chakrabarti, 2007, Spectral and timing properties of magnetized advective flows with standing shocks, Proc. Marcel Grossman Meeting, Ed. R. Ruffini et al. (World Scientific).

S. K. Chakrabarti, H. Ghosh, and D. Som, 2007, Astrophysical black holes -- do they have boundary layers?, Proc. Marcel Grossman Meeting, Ed. R. Ruffini et al. (World Scientific)

S. K. Chakrabarti, D. Debnath, P.S. Pal, A. Nandi, R. Sarkar, M.M. Samanta, P.J. Wiita, H. Ghosh and D. Som, 2007, Quasi periodic oscillations due to axisymmetric and non-axisymmetric shock oscillations in black hole accretion, Proc. Marcel Grossman Meeting, Ed. R. Ruffini et al. (World Scientific).

Outside ICRANet: Other activities are present in my biodata which is attached.

Curriculum Vitae of Prof. S.K. Chakrabarti

Prof. Sandip K. Chakrabarti was born at Malda, India in 1958 and received his Bachelor's degree from the Calcutta University in 1979, and Master's Degree from the Indian Institute of Technology, 1981. He received his Ph.D. Degree from the Department of Physics, University of Chicago, in 1985. He spent two years as the R.C. Tolman fellow at the California Institute of Technology (1987-1988) and one year at the International Centre for Theoretical Physics (ICTP), Trieste, before joining Tata Institute of Fundamental Research. He moved to S.N. Bose National Centre for Basic Science in 1996 where he is currently a Professor. He is also the founding Secretary and In Charge, Academic Affairs, of Indian Centre for Space Physics (ICSP) situated in Kolkata. He visited NASA Goddard Space Flight Centre for over a year as a Senior Research Fellow. Prof. Chakrabarti has received Young Scientist award from the Indian National Science Academy. He is a senior associate of ICTP, Italy. He had been a member of the Executive Committee of Commission-28 (Galaxies) of International Astronomical Union (IAU, 1994-2000). He is a lifemember of the IAU and a member of the American Astronomical Society.

The main focus of the research area of Prof. Chakrabarti is the hydrodynamic and radiative properties of astrophysical flows around black holes and other compact objects. He showed that the accreting matter must be transonic and should have standing, oscillating and propagating shocks. He and his collaborators studied many aspects of these flows and showed that the black hole accretion must have non-Keplerian component which plays a major role in deciding the observational properties. Indeed, more and more observational results, which include the spectral and timing properties of all the black hole candidates generally support his view that black holes also have a dissipative region around it which is non-Keplerian. He wrote the first monograph on “Theory of Transonic Astrophysical Flows” (World Scientific Pub. Co., Singapore; 1990). He has completed over 300 research articles and written or edited several books and conference volumes. A dozen of students have submitted Ph.D. Thesis under his supervision and several are currently working.

As the academic head of ICSP, Prof. Chakrabarti is involved in research works in several topics in Astronomy, Astrophysics and Space Science which range from Very Low Frequency (VLF) studies of ionosphere, planetary ring dynamics, Astrobiology, X-ray data analysis, testing and evaluation of payloads and developments of detectors for X-ray astronomy.

Prof. Chakrabarti organized several conferences, and has written several popular articles for the bulletin of ICSP and news-media.

Chechetkin Valeri

I Scientific Work

Keldysh Institute of Applied Mathematics Phone: (7 495) 2512648

RAS Fax: (7 495) 9720737

Moscow, Russia e-mail: chech@gin.keldysh.ru

PERSONAL DATA:

Birth date: 23 March 1941

EDUCATION AND DEGREES:

1971 Keldysh Institute of Applied Mathematics PhD in Physics

1981 Institute of Space Research RAS Doctor of Phys-Mat. Sc.

1998 M I PH U Professor

2000 RAS Professor

1968 Keldysh Institute of Applied Mathematics Y.S.Researcher

1958-1964 Moscow Univ. of Physics and Technology

RESEARCH POSITIONS:

1994-2007 Keldysh Institute of Applied Mathematics RAS Main Scientific Researcher

1998-2007. M I PH U , Moscow, Russia Professor

PUBLICATIONS:

Books and monographs 4

Articles in refereed journals 200

Invited papers in books 12

Conference reports 24

RESEARCH EXPERIENCE:

Fluid Dynamics:

The Raleigh-Taylor instability and other hydrodynamic instabilities, Turbulence, Shocks, Explosions;

Combustion:

Turbulent flames, Detonation, Flame ignition;

Nonlinear Physics:

Front propagation, Instabilities, Fractals;

Electrodynamics and Plasma Physics:

Plasma instabilities, Magnetohydrodynamics;

Astrophysics:

Supernova events, Thermonuclear explosions, White dwarfs, Jets, Nucleosynthesis, Neutron Stars, Accretion Discs, Black Holes, High-Particles in Astrophysics.

Leader in 6 successful projects

Chieffi Alessandro

Position: I° ricercatore

Period covered: since 2001

I Scientific Work

Curriculum Vitae

Alessandro Chieffi, Ph.D.

92, Via Bonincontri, 00147 Roma, Italy

Home: (39)065126576 – Office (39)0649934457

E-mail: alessandro.chieffi@iasf-roma.inaf.it

Personal Information

Birth: September 10 1954 in Rome (Italy)

Civil Status: married

Children: three (16, 15 and 10)

Education

PhD in Physics “cum Laude” in 1981 at the University “La Sapienza” in Rome (Italy).

“Maturità classica” awarded in 1973 in the Italian Secondary School “Ennio Quirino Visconti”

Positions

(current) First Researcher at the Istituto di Astrofisica Spaziale e Fisica Cosmica (Istituto Nazionale di AstroFisica) since 31/12/2001.

16/04/1983 - 30/12/2001 Researcher at the Istituto di Astrofisica Spaziale e Fisica Cosmica del CNR.

6/10/1982-5/10/1983 Research Associate at the Astronomy Department, University of Illinois (USA) at Urbana – Champaign.

Scholarship won at the CNR in 1982.

Partecipation to International Projects

CoInvestigator for the observation of the lines of 44Ti and 60Fe in SN1987A.

Satellite:INTEGRAL. Instruments: SPI e IBIS.

Integral AO-1 proposal “Probing core collapse: 44Ti and 60Co nucleosynthesis in SN1987A.

CoInvestigator in the project “Distances, Ages, and Metal Abundances in Globular Cluster Dwarfs”. Telescope: VLT2. Instrument: UVES.

CoInvestigator in the proposal VLT-ESO Period 63 “The WD cooling sequence in the nearest globular cluster: a fundamental step to constrain the age of the Universe” in 1999.

Teaching experience

2007 lectures on “Theoretical Astrophysics” at the University “La Sapienza” , Roma.

2007 lectures on “stellar evolution” at the Monash University (Melbourne – Australia)

Referee activity

The Astrophysical Journal

Astronomy and Astrophysics

Publication of the Astronomical Society of Australia

Ministero per l’Università e la Ricerca Scientifica e Tecnologica (Cofin)

CNR

Review and invited talks

2006 invited talk on “The explosive yields of massive stars” at the SISSA-ICTP SUPERNOVAE Meeting

2006 review talk on “Presupernova evolution and explosive nucleosynthesis of massive stars” held at Nuclei in the cosmos IX - CERN (Geneve)

Research activity

I have been working on stellar evolution for more than 20 years. My expertise extends from the low mass stars (M=0.5 MO) up to the massive stars (M=120 MO) and covers almost all the evolutionary phases experienced by these stars (Pre Main Sequence, H-burning, Red Giant Branch, He-burning, Asymptotic Giant Branch, Thermal Pulses, advanced burnings, explosive burnings). Over these 20 years I have worked actively on these subjects: Star clusters (Galactic Globular and Open Clusters, Magellanic Clouds Globulars etc.)

Horizontal Branch of the Globular Clusters

AGB stars and S-process nucleosynthesis

Stellar nucleosynthesis

Nuclear Astrophysics

Chemical evolution of the matter in the Universe

Core collapse supernovae

Explosive nucleosynthesis

The first stellar generation (pop.III stars)

I am also the primary developer of the stellar evolutionary code FRANEC, one of the most versatile codes presently available. Hence my interests cover also all the numerics and input physics involved in the stellar modelling.

Christodoulou Demetrios

Position: Professor of Mathematics and Physics

Period: 2001 -

I Scientific Work

Research Fields

Partial Differential Equations

Geometric Analysis

General Relativity

Fluid Mechanics

Christodoulou, Demetrios: CV

Birthdate: October 19, 1951

Birthplace: Athens, Greece

Characterization: Mathematician and Physicist

Educational History

M.A. physics Princeton University, 1970

Ph.D. physics Princeton University, 1971

Professional History

1971-1972 California Institute of Technology, Research Fellow

1972-1973 University of Athens, Greece, Professor of Physics

1973-1974 CERN, Geneva, Visiting Scientist

1974-1976 International Center for Theoretical Physics, Trieste

1976-1981 Max Planck Institute, Munich, Humboldt Fellow

1981-1983 Courant Institute, Visiting Member

1983-1985 Syracuse University, Associate Professor of Physics

1985-1987 Syracuse University, Professor of Mathematics

1988-1992 Courant Institute, Professor of Mathematics

1992-2001 Princeton University, Professor of Mathematics

2001- ETH Z¨urich, Professor of Mathematics and Physics

Honors and Awards

June 1981 Otto Hahn Medal, Max Planck Society

August 1990 Invited Address, International Congress of Mathematicians, Kyoto

November 1991 Basilis Xanthopoulos Award, GRG Society

June 1993 MacArthur Fellows Award

March 1996 Excellence in the Sciences Award, Academy of Athens

June 1996 Honorary Doctorate in the Sciences, University of Athens

April 1998 John Simon Guggenheim Fellow

January 1999 Bˆocher Memorial Prize, American Mathematical Society

January 2000 Zenon Prize, Mathematical Society of Cyprus

May 2000 Honorary Doctorate in the Sciences, National Technical University, Greece

July 2000 Taxiarchis of the Order of Phoenix, the President of the Hellenic Republic

April 2001 Elected to the American Academy of Arts and Sciences

May 2001 Honorary Doctorate in the Sciences, Brown University

March 2003 Elected to the European Academy of Sciences

May 2003 Honorary Doctorate in the Sciences, University of Cyprus

October 2003 Leonardo Da Vinci Lecture, University of Milan June 2006 Aristeio Bodossaki

May 2007 Mordell Lecture, Cambridge University

Research Fields

Partial Differential Equations

Geometric Analysis

General Relativity

Fluid Mechanics

Coullet Pierre

Professeur à l'Université de Nice-Sophia Antipolis, INLN (Institut Non-Linéaire de Nice).

Né à Nice (France) en 1949

Curriculum

• Chercheur au CNRS de 1975 à 1987 (1984-1987 Directeur de Recherche).

• Professeur à l'Université de Nice-Sophia Antopolis depuis 1987.

• Membre senior de l'Institut Universitaire de France depuis 1995.

• Cofondateur de INLN (Institut Non-Linéaire de Nice) in 1991 avec G. Iooss.

• Directeur de l'INLN de 1995 to 2002.

Distinctions

• Prix Langevin de la société Française de Physique (1990).

• Prix C.S. de Freycinet de l'Académie des Sciences (1991).

• Médaille d'argent du CNRS (1993).

• Membre étranger de l'Académie des Sciences Chilienne (1999).

• Prix Humboldt (Allemagne, 2000).

• Prix Holweck de la SFP et de « Institute of Physics, UK » (2001).

Responsabilités nationales et internationales

• Président du comité « Basic Sciences » du prix Descartes (2000-2004).

• Membre du jury junior de l'IUF (2000-2003).

• Membre du bureau de l'Institut Universitaire de France (2000-).

• Membre du comité éditorial du "J. of Bifurcation and Chaos" et du "J. of Turbulence".

• Membre du « Grand Jury » du prix Descartes (2005-).

Responsabilités locales

• Chargé de mission « Culture scientifique » auprés du Président de l'Université.

• Chargé de mission sur les filières scientifiques auprès du Recteur.

Publications

Plus de 150 publications dans le domaine des systèmes dynamiques, du chaos de la turbulence et de l'auto organisation (dans les fluides, les cristaux liquides, l'optique, les réactions chimiques et les systèmes biologiques)

Recherche

Mon domaine d'activité est celui des Systèmes Dynamiques. Ma principale contribution concerne la découverte de l'universalité de la transition vers le « chaos ». Ce travail, fait à l'université de Nice en collaboration avec C. Tresser, a été reconnu par les physiciens et les mathématiciens (dont plusieurs médaillés « Field » et l'Encyclopédie Universalis !) comme une découverte majeure. Un système physique « poussé » hors de l'équilibre thermodynamique finit par se comporter de façon erratique. La transition vers la complexité présente une analogie frappante avec les transitions de phase. Nous avons, indépendamment de M. Feigenbaum introduit le nombre universel qui décrit cette transition. Nous avons été les premiers à conjecturer que l'on pourrait mesurer expérimentalement ce nombre. Ce nombre a effectivement été mesuré dans des systèmes très variés (systèmes mécaniques, optiques, acoustiques, chimiques et même biologiques). J'ai appliqué la théorie des systèmes dynamiques dans des domaines aussi différents que la mécanique des fluides, l'optique non-linéaire, les cristaux liquides, les réactions chimiques, les systèmes biologiques excitables et la condensation de Bose-Einstein)

Enseignement

Je suis fortement impliqué au sein du département de physique dans la mise en place de nouveaux enseignements qui font une large place aux aspects expérimentaux et à l'histoire des idées. Le développement d'outils de simulations interactives des processus dynamiques a occupé une large partie de mon activité. Je m'efforce d'établir un contact avec la

communauté des professeurs du secondaire dans le but de lutter contre la désaffection des filières scientifiques.

Filippi Simonetta

Position: **Associate Professor** in **Theoretical Physics**, University Campus Biomedico of Rome.

Period covered: 2003-today

I Scientific Work

-Physics of self-gravitating systems

-Nonlinear dynamics and complex systems

-Relativistic Astrophysics and Cosmology

II Conferences and educational activities

Conferences and Other External Scientific Work

-Varenna Physics School on "Gamow Cosmology": communication on "The Capture of Particles in an Einstein-Straus Universe", 1982.

-Equatorial School of Relativistic Astrophysics, CIF (Centro Internacional de Fisica), Bogotà (Colombia), communication on "Processes of clustering in Friedmann cosmology", 1984.

-International Meeting on Internal Dynamics of Galaxies, Accademia Nazionale dei Lincei (Rome,Italy), invited talk: "New class of rotating, anisotropic and inhomogeneous models of elliptical galaxies based on the tensor virial theorem," 1988.

-"Fifth Marcel Grossmann Meeting," Perth (Australia), communication on "Equilibrium of triaxial self-gravitating ellipsoid with rotation and anisotropic pressure," 1988

-International Meeting on Dynamics of Galaxies, Accademia Nazionale dei Lincei (Rome, Italy) , communication: "Observable properties of generalized Riemann ellipsoids and their application to elliptical galaxies", 1989.

-"Italian - Soviet Symposium on Cosmology and Relativistic Astrophysics" (Estonia), invited talk: "Generalized Riemann ellipsoids," 1989.

-"Italian - Korean meeting on relativistic astrophysics", (Rome, Italy), invited talk: "Non-linear Dedekind-Riemann sequences," 1989.

-International Meeting on Dynamics of Galaxies, Accademia Nazionale dei Lincei (Rome, Italy) , communication: "Nonlinear Velocities in Ellipsoidal Figures of equilibrium," 1990.

-"Sixth Marcel Grossmann Meeting," (Kyoto, Japan) communication on "Dynamical Equilibrium and Stability of Rotating Masses," 1991.

-International Meeting on Dynamics of Elliptical Galaxies, Accademia Nazionale dei Lincei (Rome, Italy) , communication: "Relations between observed quantities and parameters of galactic models," 1991.

-International Meeting on Structures in Early-Type Galaxies, Accademia Nazionale dei Lincei (Rome, Italy) , communication: "Landau damping in galactic systems," 1992.

-"Seventh Marcel Grossmann Meeting," Stanford University (USA), communication: "The Landau damping in semi-degenerate gravitating systems," 1994.

-"Italian - Korean meeting on relativistic astrophysics," (Italy), invited talk: "The n-th order Virial Theory," 1995.

-International Meeting on Normal galaxies at high and low red-shift. Structure, Dynamics and Evolutions, Accademia Nazionale dei Lincei (Rome, Italy) , communication: "Inhomogeneous self-gravitating, rotating toroidal sequences," 1997.

-"Eighth Marcel Grossmann Meeting" (Hebrew University, Jerusalem, Israel), communications: "Landau damping of fermions perturbations in an expanding universe," "Toroidal solutions to the problem of inhomogeneous rotating gravitational systems," 1997.

-"Ninth Marcel Grossmann Meeting" University of Rome "La Sapienza", communications: "Equilibrium Solutions for Self-Gravitating Polytropic Systems"

"Functional Method to solving the Euler Equation for Self-Gravitating Systems", 2000.

-YALE COSMOLOGY WORKSHOP on The shapes of galaxies and their halos, communication: "A General Theory of self-gravitating Systems: Shapes of Astronomical Objects", 2001.

-Member of Scientific Organizing Committee "Fermi and Astrophysics", 2001.

- Vip guest at Stanford University for the Gravity Probe B launch mission.2004.

- Russian-Italian Lifshitz-Zeldovich Meeting on Relativistic Astrophysics, Pescara Italy, 2005.

-COMSOL Italian Multiphysics Meeting, Milan Italy, 2005.

- *Cardiac Dynamics* Kavli Institute for Theoretical Physics, Universita' di Santa Barbara, California, 2006.

-Bego scientific Rencontres, Nice, France 2006.

-COMSOL Users Conference, Milan, Italy 2006.

-Cardiac MEF and Arrhythmias Conference, Oxford, UK 2007.

-10th Italian-Korean Symposium on Relativistic Astrophysics in Pescara, Italy, 2007.

<u>Work With Students</u>

Alessio Gizzi, Miranda Barrella

Diploma thesis supervision

Dr. Costantino Sigismondi, Dr. Sandra Kanani

Other Teaching Duties

1) Engineering Faculty (University Campus Biomedico)

Reader: Dynamics of Complex Physiological Systems

Reader: General Physics I

2) Medicine Faculty(University Campus Biomedico):

Coordinator of the courses of Physics for Medicine,Nursing and Dietology.

3) Reader of IRAP PhD

4) Reader and examiner at University La Sapienza of Rome for the course of Theoretical Physics II.

Work With Postdocs

Prof. Filippi is involved in research activities with Dr Christian Cherubini regarding the the fields of Galactic Structures and Complex Systems in Nature. She has also started a collaboration with Dr Andrea Geralico in problems of General relativity,

III Service activities

Within ICRANet

Organization of conference activities in the ICRA center of Pescara as well as in the organization of other ICRA meetings.

V Other

Prof. Filippi has a longstanding collaboration with other ICRANETscientists. In particular in collaboration with Prof. Remo Ruffini and Prof. Alonso Sepulveda, she has written plenty articles in various areas of self-gravitating systems and Galactic Structures. She has started recently a collaboration with Dr Donato Bini and Dr Christian Cherubini in the field of Complex Systems in Nature.

Jing Yipeng

Position: Professor

Period covered: 1999--

I Scientific Work

Observational Cosmology and Galaxy Formation

II Conferences and educational activities

Conferences and Other External Scientific Work

The 1st Sino-Italian Conference on Astrophysics (2004)

The 4th Sino-Italian Conference on Astrophysics (2007)

CURRICULUM VITAE of Y.P. JING

PERSONAL DATA

Name:	Yipeng JING
Position:	Professor, Shanghai Observatory
Date of birth:	09 Jan. 1964
Place of birth:	Zhejiang, P.R. China
Nationality:	P.R. China

INSTITUTION and ADDRESS FOR CORRESPONDENCE

Shanghai Astronomical Observatory
The Chinese Academy of Sciences
Nandan Road 80, Shanghai 200030
China

Telephone: +86-21-64386191
Telefax: +86-21-64384618
E-mail: ypjing@shao.ac.cn

Professional Preparation:

Hangzhou University/China)	Theoretical physics	B.S. 1984
Int. Sch. Advanced Studies (SISAA), Italy	Astrophysics	M.S. 1991
Int. Sch. Advanced Studies (SISAA), Italy	Astrophysics	Ph.D. 1992

Professional Employment:

2000 – Professor
Head, the Cosmology Group of National Observatories
Shanghai Observatory
2003– Chairman, the Scientific Advisory Committee for Shanghai Observatory
2005– Director, the Joint Center for Cosmology and Galaxy with USTC
2006– Director, Center for Cosmology and Galaxy, SHAO

Synergistic Activities:

–Member of the Advisory Committee, the National Key Project of China "The formation and evolution of galaxies" (1999-2005);

–Head of Shanghai Node, EC-RTN project "Astrophysics Network for Galaxy Lensing Studies" (2003—).

–co-PI of The CAS key project "Institute for Theoretical Astrophysics" (2004—)

Kim Sung-Won

Prof. Sung-Won Kim
Department of Science Education, Ewha Womans University
Seoul 120-750, Korea
+82-2-3277-2698 (Office), 011-9902-2698 (Mobile Phone)
+82-2-3277-2684
sungwon@ewha.ac.kr

Lee Hyun Kyu
Department of Physics, Hanyang University
Seoul 133-791, Korea hyunkyu@hanyang.ac.kr

Limongi Marco

Position: Research Astronomer

Period covered:

I Scientific Work

Stellar Evolution with special attention to the presupernova evolution of massive stars, their explosion and their hydrostatic and explosive nucleosynthesis.

CURRICULUM VITAE

Marco Limongi

Personal Data: Born in Rome (Italy) on May 18th 1966, Italian Citizen.

Home Address: Via Luigi Rizzo, 14

I-00136, Rome, ITALY

Tel. 0039 06 397 51584

Academics: 1995. Ph.D. in Astronomy at University of Rome "La Sapienza", Italy

1990. Degree in Physics, University of Rome "La Sapienza", Italy

Present Position: Researcher Astronomer (Staff Member), since 1994, at

INAF – Osservatorio Astronomico di Roma

Via Frascati, 33

I-00040 Monteporzio Catone, Rome, ITALY

Tel. 0039 06 94286 443 – FAX 0039 06 9447 243

Email: marco@oa-roma.inaf.it

Other Positions: 2006. Member of the IAU

2005. Honorary Member of the Maths Department and Centre for Stellar and Planetary Astrophysics at Monash University, Melbourne, AUSTRALIA

Long Term Visits: 2007. One month as Visiting Scientist at The University of Tokyo, JAPAN

2006. Two moths as Visiting Scientist at The University of Tokyo, JAPAN

Teaching Activity: 2007. 10 hours lectures on “Stellar Evolution” at The University of Rome “La Sapienza”

2007. 20 hours lectures on “Numerical Astrophysics” at the University of Rome “La Sapienza”

2006. Ph.D. in Astronomy, University of Bologna, Italy. The Physics of Core Collapse Supernovae (3 lectures)

Seminars and Colloquia: 2005 – The University of Tokyo (Japan): “Evoluton and Explosion of Massive Stars With Mass Loss”

2005 – The University of Tokyo (Japan): “Presupernova evolution and explosive nucleosynthesis of solar metallicity massive stars: The production of ^{26}Al and ^{60}Fe”

2005 – Institute of Astronomy, University of Cambridge (UK): “Presupernova evolution and explosive nucleosynthesis of massive stars”

Publications: 45 papers on refereed journals of which 8 as first author

15 invited talks at international meetings

50 among conference proceedings and non-refereed journals

Organizing Activity: 2006 – Member of the Scientific Advisory Commettee for the International Meeting “The Multicolored Landscape of Compact Objects and their Explosive Origin”, Cefalu’ (Palermo), Italy

2004 – Member of the Scientific Advisory Commettee for the International Meeting “Interacting binaries: accretion, evolution and outcomes”, Cefalu’ (Palermo), Italy

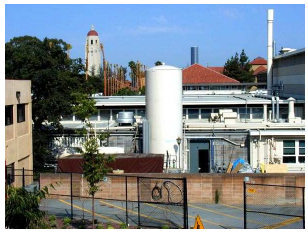
1997 – Chair of the educational project “Incontri con l’astronomia”

National Activity: 2006 – Elected member of the committee of the “MACROAREA 2” of the Italian National Institute of Astrophysics (INAF)

Current Research Fields: Stellar Evolution, Supernovae, AGB Stars, Nucleosynthesis, Nuclear Astrophysics, Galaxy Evolution, Cosmology, γ-ray Astronomy

Mester John

Department:
Supervisor:
W.W. Hansen Experimental Physics Labs
Stanford University
Stanford, CA 94305-4085
mester@relgyro.stanford.edu



Mignard François

I Scientific Work

Research Interests:

Main Fields:

- Space Astrometry
- Space Reference frames

Secondary Fields:

- Solar System Dynamics
- Lunar Laser Ranging
- Gravitational Physics
- Time Metrology

CV

François Mignard is a member of the Gaia Science Team and chair of the Data Analysis Consortium Committee (DACC). In this latter role he leads the effort to form the Gaia Data Processing Consortium which will be responsible for treating the enormous dataset generated by Gaia. Prior to Gaia François played a key role in the Hipparcos mission as part of the FAST data reduction consortium. He also leads two of the Gaia working groups: the solar system working group, and the relativity and reference frame working group. This reflects his scientific interests which are in the fields of astrometry, reference frames, solar system objects and planetary detection.

- Born in Paris on 23 July 1949
- Educated at the Ecole Normale Supérieure and the University of Paris
- Joined CERGA in 1974 and CNRS in 1975
- PhD in 1980 : Tidal effects in the solar system

- Post Doc 1981 : Cornell University (USA)
- Director of CERGA 1992-2003.
- Hipparcos mission and Hipparcos Science Team 1983-1997
- Presently Director of Research in CNRS at the Observatory of Côte d'Azur in the Dept Cassiopée.

Research responsabilities

- Chair of the IAU Working Group on the ICRS
- Associate member of the Bureau des Longitudes

- Member of the French National Committee of Scientific Research (Astronomy)
- Chair of the High Scientific Committee of the Observatory of Paris
- Member of the Science Council of the Institut de Mécanique Céleste
- Member of the Science and Administrative Council of the Observatory of Côte d'Azur
- Member of the CNES advisory committee on fundamental physics
- Member of the Scientific Advisory Board of the Astronomisches Rechen-Institut

- Member of the GAIA Science Team (ESA)
- Chair of the GAIA Solar System working group
- Chair of the GAIA Relativity and Reference Frame working group

Montani Giovanni

Position: Researcher

Period covered: 1991-2007

I Scientific Work:

Fundamental GR, Early cosmology, Quantum Gravity and Unification Theories.

II Conferences and educational activities:

Conferences and Other External Scientific Work

He works on Plasma Physics at ENEA CR. Frascati

Work With Students

He directs the CGM Group of ICRA-'Sapienza' University of Rome (www.icra.it/cgm).

Diploma thesis supervision

He was supervisor of 21 Degree Thesis and 8 PhD Thesis (someone of them yet in progress)

Other Teaching Duties

He gave Degree Lectures on Physics of Gravitation since 2001 at 'Sapienza' University of Rome. He gave three PhD lectures of the IRAP PhD on 2005-2006-2007.

Work With Postdocs

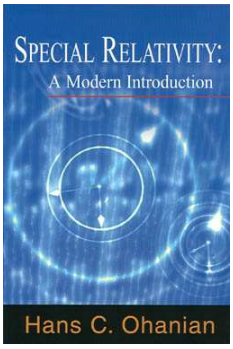
He is following the research activity of two Postdocs posistion.

III Service activities:

Within ICRANet

He belongs to the Faculty of the IRAP PhD. He was in the scientific commetee of the I and II Stueckelberg Workshop.

Ohanian Hans



Position: Professor

Rensselear Polytechnic Institute, New York, USA

Publication list

Books

1. **Physics for Engineers and Scientists**
   di Hans C. Ohanian, John Markert - W. W. Norton & Company - June 2007

2. **Classical Electrodynamics**
   di Hans C. Ohanian - Infinity Science Press - October 2006

3. **Modern Physics**
   di Hans C. Ohanian - Prentice Hall - January 1995

4. **General Physics V2**
   di Hans C. Ohanian - W. W. Norton & Company - January 1994

5. **Gravitation and Spacetime**
   di Hans C. Ohanian, Reno Rufkin - W. W. Norton & Company - November 1994

6. **Principles of Physics**
   di Hans C. Ohanian - W. W. Norton & Company - January 1994

7. **Ohanian's Physics**
   di Van E. Neie - W. W. Norton & Company - August 1989

8. **Principles of Quantum Mechanics**
   di Hans C. Ohanian - Benjamin-Cummings Publishing Company - December 1989

Perez Bergliaffa Santiago Esteban

Position: Professor – Department of Theoretical Physics, Institute of Physics, University of the State of Rio de Janeiro (Brazil).

Period covered at ICRANet: One month (July-August 2006), one month (July-August 2007).

I Scientific Work

I work in gravitation and cosmology, particularly in f(R)-theories and bouncing universes.

During my first visit to ICRANET I published the article *Constraining f(R) theories with the energy conditions* (SEPB), Phys.Lett.B642:311 (2006), gr-qc/0608072, and worked on the manuscript *Creation of cosmological magnetic fields in a bouncing cosmology*, J. Salim, N. Souza, SEPB , T. Prokopec, which was published later in JCAP 0704:011,2007, astro-ph/0612281. During the 2nd period, I prepared the manuscript *Bouncing Cosmologies* (SEPB and M. Novello), which will be send to publication before the end of 2008.

See my CV at http://lattes.cnpq.br/2925938973363409.

II Conferences and educational activities

Conferences and Other External Scientific Work

Among other conferences, I participated in the last three editions of the Marcel Grossmann Meeting(Rome 2000, Rio de Janeiro 2003, and Berlin 2006). I was part of the Organizing Committee of the MGM in Rio, and co-editor of the proceedings. I also took part in the organization of the last three editions of the Brazilian School of Cosmology and Gravitation, as well as in the co-edition of the preceedings, and in the organization of the 1st Cesare Lattes Meeting (Rio de Janeiro, 2007). All these activitites received support from ICRANet.

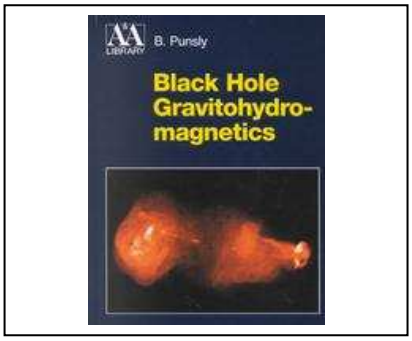
Work With Students

I am currently working with 1 student in an “Initiation to Physics” program, and with 2 more students in their MS thesis.

Other Teaching Duties

I am teaching several courses at the graduate level in the University of the State of Rio de Janeiro.

Punsly Brian



Position: Staff Scientist

Period covered: 1/2004 to 12/2007

I Scientific Work

Punsly, B., **Black Hole Gravitohydromagnetics** Second edition Springer- Verlag, Heidelberg 2008, in press

Punsly, B., "Dynamic boundaries of event horizon magnetospheres" MNRAS Lett (2007), **381** 79

Ghosh, Kajal and Punsly, B., "The Physical Nature of Polar Broad Absorption Line Quasars" ApJL (2007), **661** 139

Punsly, B., "Three-dimensional Simulations of Ergospheric Disk-driven Poynting Jets" ApJL (2007), **661** 21

Punsly, B., "The Velocity Field of Quasar Broad Emission Line Gas" ApJL (2007), **657** 9

Punsly, B., "Kinetically dominated FRII radio sources" MNRAS Lett (2007), **374** 10

Punsly, B., "3C 216: A Powerful FR II Seyfert 1 Galaxy" ApJL (2006), **651** 17

Punsly, B., "X-Ray Absorption in Type II Quasars: Implications for the Equatorial Paradigm of Broad Absorption Line Quasars" ApJ (2006), **647** 886

Punsly, B., and Tingay, S. "PKS 1018-42: A Powerful, Kinetically Dominated Quasar" ApJL (2006), **640** 21

Punsly, B., "External sources of Poynting flux in magnetohydrodynamic simulations of black hole ergospheres" MNRAS (2006), **366** 29

Punsly, B., Rodriguez, L. Tingay, S. and Cellone, S. "PKS 1622-253: A Weakly Accreting, Powerful Gamma-Ray Source" ApJL (2005), **633** 99

Punsly, B., and Tingay, S. "PKS 0743-67: An Ultraluminous Accretion Disk and a High Kinetic Luminosity Jet" ApJL (2005), **633** 89

Chicone, C.; Mashhoon, B.; Punsly, B. "Relativistic motion of spinning particles in a gravitational field" PhLA (2005), **343** 1

Punsly, B., and Lipari, S. "Diagnostics of Quasar Broad Absorption Line Geometry: X-Ray Observations and Two-dimensional Optical Spectroscopy" ApJL (2005), **623** 101

Punsly, B. “An Independent Derivation of the Oxford Jet Kinetic Luminosity Formula” ApJL (2005), **623** 9

Punsly, B. “Fast-Wave Polarization, Charge Horizons, and the Time Evolution of Force-free Magnetospheres” ApJL (2004), **612** 41

Semenov, V., Dyadechkin, S, and Punsly, B. “Simulations of Jets Driven by Black Hole Rotation” Science (2004), **305** 978

Punsly, B and Bini, D.. “The Origins of Causality Violations in Force-free Simulations of Black Hole Magnetospheres” ApJL (2004), **601** 135

Chicone, C.; Mashhoon, B.; Punsly, B. “Dynamics of Relativistic Flows” IJMPD (2004), **13** 945

Starobinsky Alexei A.

Position: Visiting Professor

Period covered: 22.10 – 22.11.2007

I Scientific Work

1. **Scalar-tensor models and baryon acoustic oscillations (with**

R. Gannouji, D. Polarski and A. Ranquet).

2. **Axial inhomogemeities in WMAP's cosmic microwave background maps**

(with V. Gurzadyan et al.)

II Conferences and educational activities

Conferences and Other External Scientific Work

Organization and participation in the Cosmology workshop "Montpelleier-07",

Montpellier (France), 25-26.10.2007.

Other Teaching Duties: Course of lectures "Dark energy in the Universe"

CURRICULUM VITAE

Alexei A. Starobinsky

Born: April 19, 1948, Moscow, USSR

M.S.: 21 January 1972, from the Physics Department, Moscow State University

Ph.D.: 14 November 1975, from the Landau Institute for Theoretical Physics,

USSR (now Russian) Academy of Sciences

Supervisor for M.S. and Ph.D.: Academician Ya.B. Zeldovich

Research Positions

_ May 1975 - August 1990 | Research Scientist, Senior Research Scientist in the Landau Institute for Theoretical Physics

_ August 1990 - June 1997 | Head of the Department of Gravity and Cosmology and Leading Research Scientist, Landau Institute for Theoretical Physics

_ Since June 1997 by now | Main Research Scientist, Landau Institute for Theoretical Physics, Moscow, Russia

_ March - September 1991 | Visiting Professor, Ecole Normale Superieure, Paris, France

_ November 1993 - September 1994 | Visiting Professor, Yukawa Institute for Theoretical Physics, Kyoto University, Kyoto, Japan

_ August 2000 - February 2001 | Visiting Professor, Research Center for the Early Universe, University of Tokyo, Tokyo, Japan

_ September 2006 - December 2006 | Visiting Professor, CNRS, Institut Henry Poincare, Paris, France

_ March 2007 - June 2007 | Visiting Professor, Yukawa Institute for Theoretical Physics, Kyoto University, Kyoto, Japan

Administrative Positions

_ March 1987 - August 1990 | Science Secretary of the Landau Institute for Theoretical Physics

_ May 1990 - June 1990, May 1991 - June 1991 | Co-Director of the USSR-USA Summer Programme for Young Investigators in Cosmology 1990 & 1991 (jointly with K. Thorne in 1990 and D. Schramm in 1991)

_ July 1999 - June 2003 | Deputy Director of the Landau Institute for Theoretical Physics, Moscow, Russia Scientific Awards and Fellowships

_ Russian State Distinguished Scientific Fellowship | 1994 - 1997

_ A.A. Friedmann Prize for Research in the Field of Gravity and Cosmology from Russian Academy of Sciences | 1996

_ Correspondent Member of the Russian Academy of Sciences | elected 30.05.1997

_ Prize of the International Academic Publ. Co. "Nauka/Interperiodica" for the best work of the year published in its journals | 2004.

Membership in International Societies and Committees

_ Member of the International Committee on General Relativity and Gravitation | 1989 - 1997

_ IUPAP Representative of the International Society of General Relativity and Gravitation | 2004 - 2010

_ Member of the Astronomy panel of the Long-Term Research Grants Program of the International Science Foundation | 1993 - 1994

_ Member of the New York Academy of Sciences | since 1995 Membership in Editorial Boards of Scientific Journals

_ General Relativity and Gravitation | 1989 - 1997

_ JETP Letters (Russia) | since 1991

_ Astronomy Letters (Russia) | since 1992

_ International Journal of Modern Physics D | since 1992

_ Classical and Quantum Gravity | 1993 - 1996

_ Gravitation and Cosmology (Russia) | since 1994

_ Physical Review D | 2001 - 2003

_ Journal of Cosmology and Astroparticle Physics | since 2002

Research Scientists

- Benini Riccardo — ICRANet and Università di Roma "Sapienza", Italy
- Bernardini Maria Grazia — ICRANet and Università di Roma "Sapienza", Italy
- Cherubini Christian — Campus Biomedico, Rome, Italy
- Geralico Andrea — ICRANet and Università di Roma "Sapienza", Italy
- Nagar Alessandro — Politecnico di Torino and IHES, Bures sur Yvette, France

Benini Riccardo

Position: Research Fellowship c/o Department of Physics, University of Rome “Sapienza”

Period covered: 01/07/07 – 30/06/09

I Scientific Work:

Cosmology, Quantum Mixmaster

Conferences and Other External Scientific Work

I and II Stuckelberg WorkShop on Relativistic Field Theories

XI Marcel Grossmann Meeting

3rd and 4th Italian-Sino WorkShop on Relativistic Astrophysics

10th Italian-Korean Symposium on Relativistic Astrophysics

CV - R. Benini

Education

- From July 2007: Works at the Physics Department, “Sapienza” University of Rome, financed by a Research Grant in collaboration with Dr Giovanni Montani.
- February-June 2007: Worked at the Queen Mary College, University of London, under the supervision of Prof. MacCallum, on the possibility of applying the Weyl quantization scheme to the Mixmaster model
- May 2007: Discussed his Ph.D. Thesis with title “The Inhomogeneous Mixmaster Model”
- September 2006: Obtained a fellowship from the Foundation “Angelo Della Riccia” to work in London.
- October 2003: Admitted in the XIX Cycle of Ph. D. in Physics granted with a fellowship by the University of Bologna “Alma Mater Studiorum”, Italy.
- September 2003: Master Degree in Physics, grade 110/110 cum Laude, disputing a thesis entitled: On the Chaos Covariance in the Generic Cosmological Solution.
- December 2002: Started his thesis work under the supervision of Dr. Giovanni Montani (G9 group) of the University of Rome “Sapienza”.

Talks and Meetings

- participated in the international meeting "2nd Stueckelberg Workshop on Relativistic Field Theories", Semptember 3-7, 2007 - Pescara, Italy with the contribution "*Mixmaster dynamics in the Wheeler-DeWitt frame work*".
- participated in the international meeting "7th BritGrav", April 3-4, 2007 Cambridge (UK).
- participated in the international meeting "XI Marcel Grossmann Meeting", July 23-29, 2006, Berlin (Germany) with three contributions: "*Vector Field Induced Chaos in Multi-dimensional Homogeneous Cosmologies*", "*Covariant Description of the Inhomogeneous Mixmaster Chaos"* and *"Classical and Quantum Aspects of the Inhomogeneous Mixmaster Chaoticity*".
- participated in the international meeting "1st Stueckelberg Workshop on Relativistic Field Theories", June 25 - July 01, 2006 - Pescara, Italy with the contribution "*Multi-Time approach to the Generic Quantum Cosmology*".
- participated in the international meeting "III Italian-Sino Workshop on Cosmology and Relativistic Astrophysics", July 10-20, 2005, Pescara (Italy).

Bernardini Maria Grazia

Position: Postdoctoral Research Fellow (Assegnista di Ricerca)

Period covered: April 2007 – March 2009

I Scientific Work

Study of the association between Gamma-Ray Bursts and Type Ib/c Supernovae, with particular interest toward the induced gravitational collapse phenomenon as a possible explanation for this association.

II Conferences and educational activities

Conferences:

"4th Italian-Sino Workshop on Relativistic Astrophysics", Pescara (Italy), July 20-30, 2007.

"Astrofisica Gamma dallo Spazio: AGILE e GLAST", Frascati (Italy), July 2-3, 2007.

"10th Italian-Korean Symposium on Relativistic Astrophysics", Pescara (Italy), June 25-30, 2007.

"2007 APS April Meeting", Jacksonville (USA), April 14-17, 2007.

Ph.D. Schools:

"Fundamental Physics Using Gamma-Ray Bursts", Venezia (Italy), September 16-22, 2007.

III Service activities

Within ICRANet

Member of the Local Organizing Committee for the "4th Italian-Sino Workshop on Relativistic Astrophysics" held in Pescara (Italy) on July 20-30, 2007.

Curriculum Vitae et Studiorum: Dr. Maria Grazia Bernardini

Dipartimento di Fisica

Università di Roma "La Sapienza"

P.le Aldo Moro 5

00185 Roma, Italy.

Telephone: +39 06 4991 4397

E-mail: maria.bernardini@icra.it

PERSONAL DATA

Date of birth: September 12, 1979

Place of birth: San Benedetto del Tronto (AP), Italy.

Citizenship: Italian.

Home address: via Umbria 53, 63039 San Benedetto del Tronto (AP), Italy.

Home telephone: +39 0735 83563.

Mobile telephone: +39 347 5459812.

EDUCATION

March 2007 *Physics Department University of Rome "La Sapienza", Rome, Italy.*

Ph.D. Degree in Relativistic Astrophysics.

Thesis advisor: Dr. C.L. Bianco.

"Testing a unifying Model for Short and Long GRBs and their connection with Supernovae".

November 2003 *Physics Department, University of Rome "La Sapienza", Rome, Italy.*

Admitted to the International Relativistic Astrophysics Ph.D.

Program (IRAP PhD) granted with a fellowship by the six participating institutions: ETH Zurich, Freie Universität Berlin, Observatoire de la Côte d'Azur, Université de Nice – Sophia Antipolis, Università di Roma "La Sapienza", Université de Savoie (http://www.icra.it/IRAPPhD/.)

April 2003 *Physics Department University of Rome "La Sapienza", Rome, Italy.*

Master Degree in Physics, grade: 110/110 cum laude.

Thesis advisors: Prof. R. Ruffini, Dr. C.L. Bianco.

"Application of the EMBH Model to GRB980519 and GRB020322".

July 1998 *Scientific High School "B. Rosetti", S. Benedetto del Tronto (AP), Italy.*

Scientific High School Diploma, grade: 60/60.

RESEARCH INTERESTS

· High Energy Astrophysics: Gamma-Ray Bursts.

· General Relativity.

· Cosmology.

RESEARCH EXPERIENCES

2007 – today *Physics Department University "La Sapienza", Rome, Italy.*

Post-doctoral Research Fellow (Assegnista di Ricerca)

Study of the association between Gamma-Ray Bursts and Type Ib/c

Supernovae, with particular interest toward the induced gravitational collapse phenomenon as a possible explanation for this association.

2003 – 2007 *Physics Department, University "La Sapienza", Rome, Italy.*

Ph.D. Student, under the supervision of Prof. R.Ruffini and Dr. C.L.Bianco.

Theoretical analysis of the spectral properties of the prompt emission of Gamma Ray Burst (GRB) GRB031203, showing the compatibility of the observed spectrum with the theoretical one obtained by the convolution of thermal spectra with different temperature.

Analysis of GRB980425, GRB030329 and GRB031203 and of their association with Type Ib/c Supernovae.

Study of the GRB050315 and of its "canonical" afterglow.

Analysis of GRB970228 as an example for GRBs characterized by an initial spikelike emission followed by a soft bump like e.g. GRB050724,

GRB060614, identifying in this way a possible new class of GRBs whose peculiarities depend on their astrophysical setting.

2002 - 2003 *Physics Department, University "La Sapienza", Rome, Italy*.

Undergraduate Student, under the supervision of Prof. R.Ruffini and Dr. C.L.Bianco.

Theoretical analysis of both the prompt and the late afterglow emission of GRB980519 and GRB020322, obtaining confirmations about the predictions of the model used, and in particular about the constraints on the beaming angle.

Cherubini Christian

Position: **University Researcher** (Fis/02) in Theoretical Physics.

Biomedical Engineering faculty,

University “Campus Bio-medico”,

Via A. del Portillo 21, I-001285 Rome, Italy.

Period covered: 1st November 2007-today

I Scientific Work

- Astrophysics
- General relativistic perturbation theory and Numerical Relativity.
- Derivation of exact solutions for systems of nonlinear PDEs.
- Acoustic black holes.
- Theoretical biophysics focused on pathological physiology of cardiac and neural tissues.

II Conferences and educational activities

Conferences and Other External Scientific Work

1999 -Second ICRA Network Workshop "Chaotic Universe" Rome-Pescara (ITALY).

-Third ICRA Network Workshop “Electrodynamics and Magnetohydrodynamics around Black Holes” Rome-Pescara (ITALY).

2000 -9th Marcel Grossmann a Roma (ITALIA).

2001 -Royal Astronomical Society meeting on Cosmological Models, London, (GREAT BRITAIN).

2002 -Wheeler Symposium, Princeton NJ (USA).

2003 -10th Marcel Grossmann in Rio de Janeiro (BRASIL).

-8th Italian-Korean Symposium on Relativistic Astrophysics in Pescara (ITALY).

-Inaugural Meeting of the Center for Gravitational Wave Astronomy, Brownsville, TX (USA)

2004 -Elba Meeting in Honour of Y. Choquet-Bruhat “Analysis, Manifolds And Geometric Structures in Physics”, Isola d’Elba (ITALY).

2005 - Russian-Italian Lifshitz-Zeldovich Meeting on Relativistic Astrophysics, Pescara (ITALY)

-9th Italian-Korean Symposium on Relativistic Astrophysics, Seoul (SOUTH KOREA) and Mt.Kumgang (NORTH KOREA).

-COMSOL Italian Multiphysics Meeting, Milan (ITALY).

2006 -Bego scientific Rencontres, Nice (FRANCE).

-Eleventh Marcel Grossmann Meeting on General Relativity, Berlin (GERMANY).

-COMSOL Users Conference, Milan (ITALY).

2007 -Cardiac MEF and Arrhythmias Conference, Oxford (GREAT BRITAIN).

-10th Italian-Korean Symposium on Relativistic Astrophysics in Pescara (ITALY).

-4th Italian-Sino Workshop on Relativistic Astrophysics in Pescara (ITALY).

Teaching Duties

2003/04 Assistant "General Physics I"

(Engineering Faculty, University Campus Bio-Medico)

2004/05 Assistant "General Physics I" and "Dynamics of Complex Physiological Systems"

(Engineering Faculty, University Campus Bio-Medico)

2005/06 Assistant "General Physics I" and "Dynamics of Complex Physiological Systems"

(Engineering Faculty, University Campus Bio-Medico)

2006/07 Assistant "General Physics I" and "Dynamics of Complex Physiological Systems"

(Engineering Faculty, University Campus Bio-Medico)

Work With Postdocs

The main collaboration of Dr Cherubini with ICRANET postdocs has been with Dr Andrea Geralico, in relation with perturbation theory in General Relativity and quasilocal energy definitions in charged and rotating black hole spacetimes (Dyadotorii).

III Service activities

Within ICRANet

Organization of conference activities in the ICRA center of Pescara (3rd ICRA Network workshop and Sixth Italo-Korean Meeting 1999) as well as in the organization of the 9th Marcel Grossmann in Rome (2000).

V Other

Dr Cherubini has a longstanding collaboration with other ICRANETscientists. In particular in collaboration with Dr Donato Bini, Prof. Robert T Jantzen and Prof. Remo Ruffini he has written plenty articles in various areas of General Relativity. In collaboration with Dr Giovanni Montani he has studied some problems of cosmology while with Prof. Simonetta Filippi he is involved in research activities in the fields of Galactic Structures and Complex Systems in Nature.

Geralico Andrea

Position: Postdoc

Period covered: October 1st, 2006 – September 30, 2008

I Scientific Work

- $3+1$ splitting of spacetime: measurement processes and the role of observers in general relativity;
- test particle dynamics in black hole spacetimes; motion of small extended bodies (neutral or charged test particle endowed with an internal structure described by its spin);
- general relativistic perturbation theory of Einstein-Maxwell systems at first order in the Zerilli formalism;
- exact solutions of Einstein's field equations;
- gravitational lensing techniques in strong gravitational fields;

II Conferences and educational activities

Conferences and Other External Scientific Work

ICRANet Workshops 2001-2007

Xth Brazilian School of Cosmology and Gravitation (Rio de Janeiro, Brazil, 2002)

Eleventh M. Grossmann Meeting (Berlin, DE, 2006)

APS April Meeting (Jacksonville, US, 2007)

Curriculum vitae of: ANDREA GERALICO

PERSONAL:

Born: December 1st, 1977 in Alatri (FR), Italy.

Nationality: Italian.

Status: single.

Post Address (home): Via Sicilia 40, Alatri (FR) I-03011, Italy (permanent).

Phone: +39-0775441068

E-Mail: geralico@icra.it

Languages: Italian, English.

PRESENT INSTITUTION:

- Physics Department and ICRA, University of Rome “La Sapienza”, P.le Aldo Moro 2, I-00185 Rome, Italy.

EDUCATION:

- [2006-present] Fellowship by Physics Department and ICRA, University of Rome “La Sapienza”
- [2002-2005] PhD in Physics, established by the University of Lecce (Italy).

  Successfully defended (Lecce, July 19th 2005).

  Supervisors: Dr. Franceso De Paolis (IT), Prof. Gabriele Ingrosso (IT).

  Thesis Title: "Black Holes and Naked Singularities: Applications to Test Particle Dynamics."
- [1996-2001] University "La Sapienza" in Rome: Diploma di Laurea in Physics

  (107/110); supervisors: Prof. Remo Ruffini, Dr. Donato Bini.

  Thesis Title: “Electromagnetism and gravitoelectromagnetism: applications to black hole physics”.

SCIENTIFIC BACKGROUND:

- $3+1$ splitting of spacetime: measurement processes and the role of observers in general relativity;
- test particle dynamics in black hole spacetimes; motion of small extended bodies (neutral or charged test particle endowed with an internal structure described by its spin);
- general relativistic perturbation theory of Einstein-Maxwell systems at first order in the Zerilli formalism;

exact solutions of Einstein's field equations;

- gravitational lensing techniques in strong gravitational fields;

COMPUTER SKILLS:

On WINxx operating systems: Maple, Mathematica, LaTeX.

Nagar Alessandro

Position: post-doctoral researcher

Period covered: one year

I Scientific Work

My field of research is General Relativity, in particular gravitational wave sources. My current research activity is essentially focused on binary black hole coalescence, aiming at bridging the gap between (post-Newtonian) analytic methods and massive numerical simulations on supercomputers. I'm also interested in numerical relativity projects concerned with gravitational wave emission from oscillating neutron stars.

CURRICULUM VITAE

Name:	**Alessandro NAGAR**
Date of birth:	27th March 1975
Place of birth:	Torino (Italy)
Nationality:	Italian
Address:	Corso Duca degli Abruzzi 69
	10129 Torino (Italy)
Contact:	Tel. +39-0115097213
	e-mail: alessandro.nagar@polito.it

PhD at Parma University. Joint supervision by Prof. E. Onofri and V. Ferrari

Education

2000-2004:

2000:	Civil Service (Equivalent of Military Service in the army)
1999:	Laurea in physics at Torino University, April 15th . Grade 110/110
1994-1999:	Undergraduate work at the Department of Physics of Torino University
1993:	"Maturità scientifica". Grade 60/60.

Employment and research activity

8th October – 28th October 2006:	visitor at the Relativistic Astrophysics Group of the Department of Astronomy and Astrophysics of University of Valencia.
24th September-5th October 2006:	Visitor at the IHES (*Institute-des-Hautes Etudes Scientifiques*), Bures-Sur-Yvette, Paris, France.
18th April-21st April 2006:	Visitor at the IHES (*Institute-des-Hautes Etudes Scientifiques*), Bures-Sur-Yvette, Paris, France.
13th February-26th February 2006:	Visitor at the numerical relativity group of AEI (*Albert Einstein Institute*), Golm (Potsdam), Germany
16th August-7th December 2005:	Long-term visitor of the Numerical Relativity Group at the CCT (Center for Computation and Technology), Lousiana State University, Baton Rouge (LA), USA
1st June 2005 to present:	Post-Doctoral researcher at the Department of Physics, Turin Polytechnic
7th February-26th February 2005:	visitor at the Relativistic Astrophysics Group of the Department of Astronomy and Astrophysics of the University of Valencia for research activity
2004:	postdoctoral activity at the Relativistic Astrophysics Group of the Department of Astronomy and Astrophysics of the University of Valencia, funded by an Angelo Della Riccia Foundation fellowship.

Short-term Visiting Scientists

- Aksenov Alexey — Institute for Theoretical and Experimental Physics, Moscow,Russia
- Alekseev Georgy — Steklov Mathematical Institute, Russian Academy of Sciences, Russia
- Ashtekhar Abhay — Institute for Gravitational Physics and Geometry,Penn State, University Park, PA, USA
- Fraschetti Federico — CEA Saclay, France
- Lattanzi Massimiliano — University of Oxford and ICRANet, UK- Italy
- Mosquera Cuesta Hermann — CBPF, Brasil and ICRANet
- Thiemann Thomas — Max Plank Institut für gravitationsphysik Einstein Institut, Germany
- 't Hooft Gerard — (Nobel Laureate) Institut for Theoretical Physics, Utrecht Universiteit, Holland
- Vitagliano Luca — Università di Salerno, Italy

Aksenov Alexey

Position: Senior sci. staff member, Laboratory for Astrophysics and Plasma Physics, Institute for Theoretical and Experimental Physics, Moscow, from 2000

Period covered:

I Scientific Work

Stellar rotation, collapse of stars cores, neutrino transport, neutrino luminosity curves, gravitational radiation, Z-pinches, heavy ion fusion, multidimensional multi-temperature hydrodynamic simulations, one dimensional radiative transfer codes, a numerical modeling of electron-positron pairs and photons transfer from the surface of a Strange Star, etc.

II Conferences and educational activities

2007: Plasma Physics, Febrary, Zvenigorod, Russia; 4th Italian-Sino Workshop, July, Pescara; Zababakhin scientific talks, September, Snezhinsk, Russia; 2006: Plasma Physics, Febrary, Zvenigorod, Russia; Phys. Of neutron stars, April, London; Marsell Grossmann General Relativity, June, Berlin

Regular conferences: Plasma Physics, Febrary, Zvenigorod, Russia one Conference per year, from 2003; Neutron star workshop, June, St.-Petersburg one Conference per two year from 1997; Heavy Ions Fusion one Conference per two year (San Diego, 2000; Moscow 2002; Princeton 2004); High Energy Astrophysics December, Space Res. Inst., Moscow, one Conference per year, 2002—2005

III Service activities

Within ICRANet

2007 three months Visitor at Icranet

Outside ICRANet

1989—1992 engineer, Laboratory for Astrophysics and Plasma Physics of the Institute for Theoretical and Experimental Physics (ITEP); 1992—1999 Junior sci. staff member, ITEP; 1999—2000 sci. staff member, ITEP; 2000—now Senior sci. staff member, ITEP

1993, 1997 2—3 months Visitor at Max-Planck Institute for Astrophysics, Garching, FRG; 2000/11—2001/10 Postdoc Fellow, Cond. Matt. Dept., Weizmann Institute of Science, Rehovot,

Israel; 2002—2007 Visitor at Weizmann Institute of Science, Rehovot, Israel 1—3 months per a year

Curriculum Vitae

Aksenov Alexey bas born in Moscow in 1966. From 1983 till 1989 he was a student of Moscow State Engineering Physics Institute (Technical University) of the Faculty of Experimental and Theoretical Physics. He received his diploma of physics in 1989. From 1991 till 1995 he was a post-graduate student (postal tuition) of Institute for Theoretical and Experimental Physics (Supervisors: V.S. Imsheniik and D.K. Nadyozhin). The PhD thesis “Neutrino luminosità curves, the gravitational radiation and the SNe explosion at a gravitational star’s core collapse” defended in 1998 at Space Research Institute of RAS.

He is working in Laboratory of Astrophysics and plasma physics of Institute of Theoretical and Experimental Physics in Moscow as an engineer (1989–1992), Junior sci. staff member (1992–1999), Sci. staff member (1999–2000), and Senior sci. staff member (from 2000 till now). Also from 2000/11 till 2001/10 he has Postdoc Fellow (with host professors V.V. Usov and M. Milgrom), Cond. Matt. Dept., Weizmann Institute of Science, Rehovot, Israel.

Aksenov’s research includes astrophysics (the gravitational star’s core collapse and SN mechanisms, neutron stars) and thermonuclear plasma physics (the heavy ions fussion and Zpinches). The investigation methods for those different objects are based on the computational physics and the development of original numerical methods (multidimensional hydrodynamic, one-dimensional radiative transfer, magnetohydrodynamic codes).

Alekseev Georgy

Position: Leading researcher,

Steklov Mathematical Institute

of the Russian Academy of Sciences Moscow, Russia

Period covered: November1975 – present time

I Scientific Work

Collaborative work with Prof. V.A.Belinski during 2004 – present time

Visits to Pescara: 26.06.2005 – 03.07.2005

04.05.2006 –30.05.2006

01.06.2007 – 27.06.2007

Collaborative papers:

1. G.A. Alekseev and V.A. Belinski, ``Superposition of fields of two Reissner -Nordstrom sources'', in Proceedings of the Eleventh Marcel Grossmann Meeting on General Relativity, edited by H. Kleinert, R.T. Jantzen and R. Ruffini, World Scientific, Singapore (2007) (24 pages); arXiv:0710.2515 [gr-qc].
2. G.A. Alekseev and V.A. Belinski, "Schwarzschild black hole hovering in the field of a Reissner-Nordstrom naked singularity", Il Nuovo Cimento, **122 B**, N.2 (2007) (5 pages)
3. G.A. Alekseev and V.A. Belinski, ``Equilibrium configurations of two charged masses in General Relativity'', Phys. Rev. **D 76**, 021501(R) (2007); arXiv:0706.1981v1 [gr-qc].

II Conferences and educational activities

The conferences:

1. The Russian-Italian Lifshitz-Zeldovich Meeting on Relativistic Astrophysics (27.06.2005 – 03.07.2005)
2. Eleventh Marcel Grossmann Meeting (Berlin, July 23 - 29, 2006) (ChairPerson of the GT6 section)
3. 10th Italian-Korean Symposium on *Relativistic Astrophysics (*June 25 - 30 2007, Pescara)

Ashtekar Abhay Vasant

Position: Eberly Professor of Physics and Director of the Institute for Gravitational Physics and Geometry Penn State University

Period: 1993 -

CURRICULUM VITAE

Name: Abhay Vasant Ashtekar

Degrees Ph. D. (Physics) University of Chicago, 1974 Doctor Rerum Naturalium Honoris Causa ; Friedrich-Schiller Universitaet, Jena, Germany 2005

RECENT PROFESSIONAL EMPLOYMENT:

1993- Eberly Professor of Physics and Director of the

Institute for Gravitational Physics and Geometry Penn State University

HONORS:

Member, Scientific Advisory Council, Inter-University Center for Astronomy and Astrophysics, University Grants Commission of the Government of India (2004-2007).

Scientific Organizer: One month Sub-program on Quantum Gravity of the Global Problems in Mathematical Relativity Program, held at the Isaac Newton Institute for Mathematical Sciences, Cambridge, UK (Oct-Nov 2005)

Scientific Director, A.K. Raychaudhuri Workshop on Cosmology, held at the Inter-University Center for Astronomy and Astrophysics, Pune, India (December 2005)

Member, International Advisory Board, The Central European Joint Program of Doctoral Studies in Theoretical Physics (2006-)

Visiting Professor, Beijing Normal University (2007-2012)

Fraschetti Federico

Position: Postdoctoral fellow (CEA Saclay, DSM/DAPNIA/Service d'Astrophysique)

Period covered: 2006- present

I Scientific Work

My scientific activity is focused on Theoretical Astrophysics. I have wide interests also into plasma physics and black hole physics.

In the past I dealt with a theoretical model for the Gamma-Ray Bursts (GRBs), developing a hydrodynamics lagrangian code to study the temporal structure of the light curves. I arrived to an interpretation of the BATSE distribution of duration of GRBs. Under the assumption of a thermal spectrum in the comoving frame of the expanding shell, I produced theoretical predictions on the time-resolved and time-integrated spectra either in the so-called prompt emission and in the afterglow phase.

At present I work on an 3D Adaptive Mesh Refinement hydro code based on a second-order Godunov method, in order to study the evolution of Supernova Remnant since the onset of the Chevalier self-similar phase.

I'm working also on the basical physical processes of the acceleration of particles behind the shock of the Supernova remnant and on the intriguing problem of the Ultra High Energy Cosmic Rays.

My interests extends to Black Hole Physics as well.

II Conferences and educational activities

ATTENDED CONFERENCES AND WORKSHOPS

2007 August 6-17; "From Massive Stars to Supernova Remnants", Lorentz Center, University of Leiden (Holland).

2007 May 17-18; "Physics of the Universe Confronts Observations", Ecole Internationale d'Astrophysique Daniel Chalonge, Rencontre at the Colegio de Espana, Paris.

2006 November 13-15; "XMM-Newton SSC Consortium Meeting", AIP, Potsdam, (Germany).

2006 July 23-29; "XI Marcel Grossmann Meeting", in Berlin (Germany).

2006 May 5-9; "SWIFT and GRBs: Unveiling the relativistic Universe", in Venezia (Italy).

INVITED TALKS, SEMINARS AND POSTER PRESENTATIONS

Invited Talks

2007 May 17-18; "Theoretical model for the Afterglow of Gamma-Ray Bursts", Ecole Internationale d'Astrophysique Daniel Chalonge, Rencontre at the Colegio de Espana, Paris.

2007 May 25; "Afterglow of Gamma-Ray Bursts", CEA Saclay, DSM/DAPNIA/Service d'Astrophysique, Gif-sur-Yvette.

2007 February 13; "Afterglow of Gamma-Ray Bursts", University of Orleans.

2005 May 2-7; "Theoretical model for Gamma-Ray Bursts", Congresso annuale della SAIt, Catania (Italy).

2005 January 25; "Afterglow of Gamma-Ray Bursts", Osservatorio Astronomico di Brera, Merate (LC).

Contributes Talks

2006 July 23-29; "XI Marcel Grossmann Meeting", Berlin.

Teaching Duties

AY 2006-2007, I semester, TP (Optique electrocinétique), Département de Physique, Université de Versailles, Paris, France.

III Service activities

Within ICRANet

2006 Research Assistant

Outside ICRANet

2006 June -present Post Doc at CEA Saclay, DSM/DAPNIA/Service d'Astrophysique.

2005 January-July. Fellowship by Brera Astronomical Observatory (Merate, Italy) within Swift mission for GRB.

Lattanzi Massimiliano

Position: Postdoctoral fellow (Oxford University, UK)

Period covered:

I Scientific Work

My main research interest are in the areas of Cosmology and Astroparticle Physics. In particular I have been studying the role of neutrinos in cosmological evolution, and the possibility of measuring neutrino-related quantities through cosmological observation.

Together with R. Ruffini and G. Vereschagin, I have obtained a robust upper limit on the cosmological lepton asymmetry from analysis of the cosmic microwave background data (see ML, Ruffini, Vereshchagin, PRD 72, 063003, 2005).

I have also studied, together with J.W.F. Valle, the possibility of relating the problem of dark matter to the issue of the origin of neutrino masses, proposing a new dark matter candidate, the majoron (ML, Valle, PRL 99, 121301, 2007).

At the present time, while still continuing working on these topics, I am doing research related to the annihilation of supersymmetric dark matter and on the fractal structure of the Universe.

II Conferences and educational activities

Conferences and Other External Scientific Work

2007

- Royal Astronomical Society Specialist Discussion Meeting: “Statistical challenges in particle astrophysics and cosmology”, London, UK
- Institute of Physics **“**Theta13 half day meeting”, Oxford, UK
- 2nd Meeting of the “Red Nacional Temática de Astroparticulas” (RENATA), Valencia, Spain
- Workshop “The Path to Neutrino Mass”, Aarhus, Denmark.
- 4rd Italian-Sino Workshop on Relativistic Astrophysics: “Astrophysics at z>6”, Pescara, Italy.
- 10th Italian-Korean Symposium on Relativistic Astrophysics, Pescara, Italy.
- XIXèmes Rencontres de Blois: “Matter and Energy in the Universe: from nucleosynthesis to cosmology”, Blois, France.

2006

- 1st Meeting of the "Red Nacional Temática de Astroparticulas" (RENATA), Valencia, Spain
- 11th Marcel Grossmann Meeting on General Relativity, Berlin, Germany
- 3rd Italian-Sino Workshop on Relativistic Astrophysics: "Supernovae, GRBs and Cosmology", Pescara, Italy.
- International School on Astro-Particle Physics: "Neutrinos in Physics, Astrophysics and Cosmology", Munich, Germany.

2005

- IRAP Ph.D. School in Pescara, Italy.
- "Albert Einstein Century" International Conference, Paris, France
- 2nd Italian-Sino Workshop on Relativistic Astrophysics: "Probing the Dark Universe", Pescara, Italy

2004

- "Testing the equivalence principle in space and on ground" meeting, Pescara, Italy.
- 1st Sino-Italian Workshop on Cosmology and Relativistic Astrophysics, Pescara, Italy

2003

- "VIII Italian-Korean Symposium on Relativistic Astrophysics", Pescara, Italy
- "X Marcel Grossman Meeting on General Relativity", Rio de Janeiro, Brazil.

2002

- "X Brazilian School of Cosmology and Gravitation", Rio de Janeiro, Brazil.
- X ICRA Network Workshop on 'Black Holes, Gravitational Waves and Cosmology', Roma and Pescara, Italy.
- "Science and Ultimate Reality Symposium" in honour of J. A. Wheeler, Princeton N.J.

2001

- XI ICRA Network Workshop on 'Fermi and Astrophysics', Pescara, Italy.
- VII Italian-Korean Meeting on Relativistic Astrophysics, Inje University, South Korea.
- VI ICRA Network Workshop on 'Time Structures in Relativistic Astrophysics', Pescara, Italy.

Work With Students

2005 *Lecturer*: IRAP Doctorate School, Pescara, Italy

Delivered a lecture on the thermodynamics in the expanding Universe.

2002 *Postgraduate Teaching Assistant*: University of Rome 'La Sapienza'

Physics Laboratory. Supervised lab sessions, graded papers and exams.

2001 – 2005 *Substitute Lecturer*: University of Rome 'La Sapienza'

Delivered several lectures to the advanced general relativity class on the evolution of metric perturbations in a Friedmann Universe.

Diploma thesis supervision

I followed as an adjoint supervisor Roberto Guida, now an IRAP PhD student, during its diploma thesis work, titled "Fractality and cosmological initial conditions: the role of the velocity field" (graduation date 30/9/04).

III Service activities

Within ICRANet

2005 Research Assistant, ICRANET

Outside ICRANet

2007 – Present Postdoctoral Fellow, Physics Department, Oxford University (UK)

2006 Postdoctoral Fellow, Institute For Particle Physics, Valencia (ES)

Thiemann Thomas

Research Interests

Quantum Gravity

Publications

Recent Publications:

Johannes Brunnemann, Thomas Thiemann Unboundedness of Triad -- Like Operators in Loop Quantum Gravity 2005-05-08

Johannes Brunnemann, Thomas Thiemann On (Cosmological) Singularity Avoidance in Loop Quantum Gravity 2005-05-08

Jerzy Lewandowski, Andrzej Okolow, Hanno Sahlmann, Thomas Thiemann Uniqueness of diffeomorphism invariant states on holonomy-flux algebras 2005-04-29

Bianca Dittrich, Thomas Thiemann Testing the Master Constraint Programme for Loop Quantum Gravity V. Interacting Field Theories 2004-11-29

Bianca Dittrich, Thomas Thiemann Testing the Master Constraint Programme for Loop Quantum Gravity IV. Free Field Theories 2004-11-29

Bianca Dittrich, Thomas Thiemann Testing the Master Constraint Programme for Loop Quantum Gravity III. SL(2,R) Models 2004-11-29

Bianca Dittrich, Thomas Thiemann Testing the Master Constraint Programme for Loop Quantum Gravity II. Finite Dimensional Systems 2004-11-29

Bianca Dittrich, Thomas Thiemann Testing the Master Constraint Programme for Loop Quantum Gravity I. General Framework 2004-11-29

Thomas Thiemann Reduced Phase Space Quantization and Dirac Observables 2004-11-06

Johannes Brunnemann, Thomas Thiemann Simplification of the Spectral Analysis of the Volume Operator in Loop Quantum Gravity 2004-05-11

Johannes Brunnemann, Thomas Thiemann Simplification of the Spectral Analysis of the Volume Operator in Loop Quantum Gravity 2004-05-01

Thomas Thiemann The LQG -- String: Loop Quantum Gravity Quantization of String Theory I. Flat Target Space 2004-01-23

Thomas Thiemann The Phoenix Project: Master Constraint Programme for Loop Quantum Gravity 2003-05-21

Hanno Sahlmann, Thomas Thiemann Irreducibility of the Ashtekar-Isham-Lewandowski representation 2003-03-20

Hanno Sahlmann, Thomas Thiemann On the superselection theory of the Weyl algebra for diffeomorphism invariant quantum gauge theories 2003-02-21

Hanno Sahlmann, Thomas Thiemann Towards the QFT on Curved Spacetime Limit of QGR. I: A General Scheme 2002-07-05

Hanno Sahlmann, Thomas Thiemann Towards the QFT on Curved Spacetime Limit of QGR. II: A Concrete Implementation 2002-07-05

Thomas Thiemann Complexifier Coherent States for Quantum General Relativity 2002-06-13

Thomas Thiemann, Oliver Winkler Gauge field theory coherent states (GCS): IV. Infinite tensor product and thermodynamical limit 2001-11-21

Thomas Thiemann, Oliver Winkler Gauge field theory coherent states (GCS): III. Ehrenfest theorems 2001-10-22

Thomas Thiemann Quantum spin dynamics (QSD): VII. Symplectic structures and continuum lattice formulations of gauge field theories 2001-08-14

Thomas Thiemann, Oliver Winkler Gauge field theory coherent states (GCS): II. Peakedness properties 2001-07-21

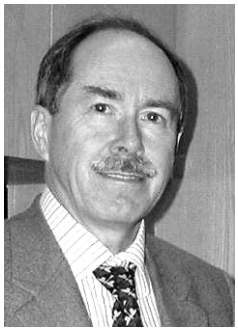
Hanno Sahlmann, Thomas Thiemann, Oliver Winkler Coherent States for Canonical Quantum General Relativity and the Infinite Tensor Product Extension 2001-07-09

Thomas Thiemann Gauge Field Theory Coherent States (GCS) : I. General Properties 2001-06-07

Thomas Thiemann Gauge field theory coherent states (GCS): I. General properties 2001-06-07

‘t Hooft Gerard

Institut for Theoretical Physics, Utrecht Universiteit, Holland



Gerardus ("Gerard") 't Hooft (born July 5, 1946, Den Helder) is a professor in theoretical physics at Utrecht University, the Netherlands. He shared the 1999 Nobel Prize in Physics with Martinus J. G. Veltman "for elucidating the quantum structure of electroweak interactions". He was awarded the Lorentz Medal in 1986.

Vitagliano Luca

Education:

July 1995	Diploma di Maturità scientifica presso il Liceo Scientifico statale 'Tito Lucrezio Caro', Napoli; *voto di maturità 60/60*
July 2000	Diploma di Laurea in Fisica, facoltà di Scienze MM. FF. NN., Università degli Studi di Napoli 'Federico II'; *voto di laurea 110/110 e lode.* Tesi di Laurea in Relatività Generale dal titolo: *Moto di una sorgente estesa del campo elettromagnetico su uno spazio-tempo curvo*.
A.A. 2000/2001 A.A. 2002/2003	dottorato di ricerca in Fisica (XVI ciclo), Università degli Studi di Roma "*La Sapienza*"

Schools and Conferences:

August 1998	partecipa alla 'I Diffiety School' su *Calcolo Secondario e Fisica Coomologica* (organizzata dal 'Diffiety Institute', Mosca), Forino (AV), Italia
February 1999	partecipa alla 'II Diffiety School', Forino (AV), Italia
August 1999	partecipa alla 'III Diffiety School', Pereslavl-Zalessky, Russia
July 2000	partecipa alla 'IV Diffiety School', Forino (AV), Italia
July 2002	Partecipa al "X ICRA Network Workshop", "Black Holes, Gravitational Waves and Cosmology", Roma-Pescara, contribuendo con un seminario dal titolo: *Collapsing Shells in General Relativity and Classical Energetics of Static Black Holes.*

Publications:

A.A. 2000/2001	Svolge le esercitazioni per i corsi di FISICA GENERALE I e II, Corso di Laurea in Informatica, Facoltà di Scienze MM. FF. NN., Università degli Studi di Roma "La Sapienza", per un totale di 30 ore di lezione.

Long-term Visiting Scientists

- Boshkayev, Kuantay — Al-Farabi Kazakh National University, Uzbekistan
- Gadri Mohamed — University of Tripoli, Libya
- Hoang Ngoc- Long — IPE, Hanoi, Vietnam
- Kim Jik Su — Pyongyang Astronomical Observatory Kim Il Sung University, North Korea
- Lee Hyung Won — School of Computer Aided Sciences, Inje University
- Ri Chang Hyok — Pyongyang Astronomical Observatory Kim Il Sung University, North Korea
- Sepulveda Alonso — Universidad de Antioquia, Colombia
- Song Doo Jong — National Institute of Astronomy Korea
- Torres Sergio — Centro Internacional de Fisica, Bogotà, Colombia
- Zalaletdinov Roustam — Dept. of Theoretical Physisc, Institute of Nuclear Physics, Uzbek Acadeny of Sciences, Uzbekistan

Gadri Mohamed

Position

Teaching Staff Member in Physics Department

Al-Fateh University since 1983

Period Covered

I have been working as a staff member since 1983

i.e. 25 years experience in teaching, research and writing books.

1- Scientific Work

I published thee papers ;

- Solid State Ionic

- Super Conductivity

- Evolution of Binary Stars

I wrote a text book in Arabic titled International Mechanics

I have translated a text book, from English to Arabic , in relativistic astrophysics titled Gravitation and Space Time by Ohanian and Ruffini.

II Conferences and education activities

Conferences and other external scientific work

I have participated in many scientific conferences out of it the following;

- Super Ionic Conductivity in Stuttgart in Germany , 1987
- 24^{th} International Cosmic Ray in Rome, 1995
- First ICRA Network Workshop in Rome 1998
- Ninth MG meeting in Rome 2000
- Eleventh MG meeting in Berlin 2006

Work With Students

I worked as a supervisor to a freshman and senior students in my institution

Diploma thesis supervision

I was oral examiner to graduate students to obtain a master degree in many fields in physics.

Other Teaching Duties

And I presented many physics courses in many in deferent Faculties of Al-Fateh University and other institutions in Tripoli

Work With Postdocs

Nil = Nothing

III Service activities

Within ICRA Net

I participated many conferences in Pescara (city of stars) and attended the celebration of the first opening ICRA net in Pescara

Hoang Ngoc Long

Position: Professor of Physics at the Institute of Physics, Hanoi, Vietnam

Period covered: 2003- present

I Scientific Work (in 2007)

In recent years Long's research focus on phenomenology of the beyond standard models and their interface with cosmology and astrophysics. His group has proposed a model based on the SU(3)_C X SU(3)_L X U(1)_X (3-3-1) gauge group with minimal Higgs sector. They called it the *economical*. At present his group studies phenomenology of its supersymmetric version. In this version, it is found that the right-handed sneutrinos are realistic candidate for self-interacting dark matter. Their model has a lot of advantages such as rich neutrino physics and high preditability. Problem of baryongenesis and leptongenesis is his current interest.

II Conferences and educational activities

Conferences and Other External Scientific Work

Conference:

1. Member of International Advisory Committee, Conference on Astro Particle CPV in Topical Physics, Yongpyong APCTP 2007, Yongpyong, Korea, February 21 - 24, 2007.

He gave an invited talk.

2. Organizer, The Osaka University - Asia Pacific – Vietnam National University Forum on Frontiers of Basic Science: Towards New Physics - Earth and Space Science - Mathematics, September 27- 29 (2005), Hanoi, Vietnam, with an invited talk.

Work With Students (I have many students, below is a part of them)

1. Do Thi Huong, Ph. D. student.
2. Le Duc Ninh, Ph. D. student.
3. Trinh Thi Huong, Ph. D. student.
4. Nguyen Quang Hung, Ph. D. student.
5. Nguyen Thi Kim Ngan, Master. Defended
6. Dao Thi Nhung, Master. Defended
7. Nguyen Thanh Phong, Master. Defended

8. Do Hoang Son, Master. Defended

9. Vo Van Vien, graduate student

10. Nguyen Van Hop, Master. Defended,

11. Nguyen Huy Thao, Master. Defended

Diploma thesis supervision

1. Dang Van Soa, obtained his PhD degree in 1997

2. Vo Thanh Van, obtained his PhD degree in 2001

3. Dinh Phan Khoi, obtained his PhD degree in 2004

4. Nguyen Quynh Lan, obtained her PhD degree in 2005

5. Phung Van Dong, obtained his PhD degree in 2007

Other Teaching Duties

- Introduction to Quantum Field Theory
- Method of Mathematical Physics
- General relativity and Cosmology

III Service activities

Within ICRANet:

He is in charge for translation of the book written by Professors Ohanian and R. Ruffini.

Outside ICRANet:

- Referee of International Journals in Physics

- Organizer of many International School and Conference

- Member of International Advisory Committee of Conference on Flavour Physics to be held in Vietnam in 2009.

CURRICULUM VITAE

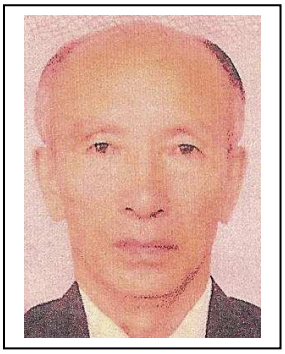
Hoang Ngoc Long was born in Thaibinh, Vietnam in 1952. He received his diploma of Theoretical Physics from St. Peterburg (Leningrad) University in Russia in 1978. Returning Vietnam, he joined the Institute of Physics, National Centre for Science and Technology in Hanoi as a junior researcher. In 1982, he visited the Joint Institute for Nuclear Research (JINR) in Dubna and joined the Laboratory for Theoretical Physics. Returned back Hanoi in 1983, he worked as a researcher at the Centre for Theoretical Physics. He defended Doctor Thesis in 1987 at Institute of Physics, Hanoi. In 1996 he became an Associate Professor of Physics. From 1997 - 2002 he was a deputy director of Centre for Theoretical Physics and a head of group of High Energy section. He became a full Professor of Physics in 2003. Since 1996, he is a chairman of Theoretical Particle Physics section, Graduate School of the Hanoi Institute of Physics.

In the period of 1998-1999, he visited Chuo University, Tokyo as a fellow of the Japanese Society for Promotion of Science (JSPS). Long visited many Institutions around the world such as the ICTP, CERN, KEK, ICRA,...

Long's research has been focused in Theoretical Particle Physics, namely, in phenomenology of the beyond standard models and interface with cosmology. He has constructed a model of electroweak unification based on the SU(3)C-SU(3)L-U(1)X gauge group in which there exist right-handed neutrinos. Recently one of these models carries his name - Long's model. He is the author, co-author of three books. He serves as a referee for journals of American Physical Society and other international journals; and for Doctor Theses.

Long is a senior associate of the Asia Pacific Center for Theoretical Physics (Seoul, Korea), the Abdus Salam ICTP (Trieste, Italy). He organized many international schools and conferences in physics. He gives lectures and supervises Ph.D students for many universities in Vietnam. Now his students are working in main research institutes and universities of Vietnam.

Kim Jik Su



Position: Senior researcher

Period covered: July 1st, 2002 – October 31st, 2007

I Scientific Work

- Inflationary behavior of scalar field theory scenario and the speed of light. Physics (in Korean), 2003 – 2.8.
- A scalar field model of Supergravity and accelerated expansion of the Universe. Physics (in Korean), 2006 – 2.15.
- Cosmological significance of a generalization of Brance-Dicke Scalar-tensor theory. Physics (in Korean), 2008. Submitted.

II Conferences and educational activities

Conferences and Other External Scientific Work

2002. July 9th – July 15th. ICRA Regional Workshop, participant.

Work With Students

Special lectures: Gravitation and General Relativity, (80 hours/year) (2004 – 2006)

Cosmology, general and special courses, (140 hours/year) (2005 – 2006)

Particle physics, (70 hours/year) (2005 – 2007)

Diploma thesis supervision

Kim Chul-Jun: Non-minimally coupled scalar fields and accelerated expansion of the Universe, (2004 – 2007)

Kim Guang-Ill: Dynamics of the accelerated expansion of the Universe according to a scalar field model of Supergravity, (2004 – 2007)

V Other

October 16, 2003 – November 15, 2003: Visiting ICRA and Astronomical Observatories of Italy (Asiago and Napoli), and discussing further collaboration between ICRA and Korean scientists.

Curriculum vitae:

Teacher in astronomy, Kim Il Sung University, 1961 – 1977.

Doctorate in physics, Kim Il Sung University, 1964.

Post doctorate fellow, Kim Il Sung University, 1967 – 1970.

Assistant Professor, Kim Il Sung University, 1978 – 1988.

Scientific researcher, Pyongyang Astronomical Observatory, 1978 –

Professor, Kim Il Sung University, 1989 –

Publications

- Inflation scenario and the speed of light. Physics (in Korean), 2003-2.8
- A scalar field model of Supergravity and accelerated expansion of the Universe. Physics (in Korean), 2006-2.15
- Cosmological significance of a generalization of Brans-Dicke scalar-tensor theory. Physics (in Korean). 2007. Submitted

Lee Hyung Won

Position: Prof.

Period covered: 1 January, 2007 – October 26, 2007

I Scientific Work

Dark energy in cosmology,

Electromagnetic wave propagation in general relativity,

Numerical relativity,

FDTD simulation for acoustic wave simulation

II Conferences and educational activities

Conferences and Other External Scientific Work

Organization of 10th Italian-Korean Symposium for Relativistic Astrophysics, June 25-30, 2007, Pescara, Italy

Participating APPC10(10th Asia Pacific Physics Conference) meeting, August 20-24, 2007, Pohang

Participating Korean Astronomy Society fall meeting, October 11-12, 2007, Ewha Womans University

Participating Korean Physical Society fall meeting, October 18-19, 2007, Jeju island

Participating APCTP Jeju meeting on gravitation and cosmology, October 19-21, 2007, Jeju island

Diploma thesis supervision

Acoustic wave simulation in open space using FDTD method (M.S. thesis)

Interacting dark energy model (Ph. D. thesis)

Other Teaching Duties

Application of C program language

Practical Computer usage

III Service activities

Outside ICRANet

Head of School of Computer Aided Science

Director of Institute of Mathematical Sciences, Inje University

Editor of JKPS(Journal of the Korean Physical Society)

Ri Chang Hyok

Position: Senior researcher in Pyongyang Astronomical Observatory

Period covered: July 1st, 2002 – October 31st, 2007

I Scientific Work

- The equation of state in quark matter and quark star structure. Physics (in Korean), 2003 – 4.10.
- The mass distribution of galaxy cluster by lensing. Scientific bulletin (in Korean), 2006 – 2.40.
- The cosmic equation of state by lensing. Physics (in Korean), 2007 – 1.

II Conferences and educational activities

Conferences and Other External Scientific Work

National Scientifical Conference (Physics) 2006. 4. (D.P.R. Korea).

Curriculum vitae:

Doctorate in physics, University of Science, 1994.

Post-doctorate fellow, University of Science, 1996 – 2000.

Scientific researcher, Pyongyang Astronomical Observatory, 2000 –

Ri Chang Hyok: publications

- The equation of state in quark matter an quark star structure. Physics (in Korean) 2003-4.10
- The Mass distribution of galaxy cluster by lensing. Scientific bulletin (in Korean) 2006-2.40
- The cosmic equation of state by lensing. Physics (in Korean) 2007-1.17

Torres Sergio

Position: Researcher, Centro Internacional de Física, Bogotá, Colombia

Period covered:

I Scientific Work

- Independent analysis of the Cosmic Microwave Background (CMB) data from the COBE mission

- Measurement of the effect of geodesic mixing with COBE data

- Measurement of diffuse galactic radiation from an Equatorial site

II Conferences and educational activities

Conferences and Other External Scientific Work

Torres has presented papers at 51 international conferences (for a complete list: home.earthlink.net/~verada/), Including the following ICRA organized conferences:

- "8th Marcel Grossman Meeting in General Relativity" (1997), "7th Marcel Grossman Meeting in General Relativity" (1994), the "2nd William Fairbank Conference on Relativistic Gravitational Experiments in Space & Related Theoretical Topics" (1993)

Work With Students

1990 – 96: as Astrophysics director at the Centro Internacional de Física, (Bogotá) lead a team to map galactic radio emission (project GEM) with 10 students.

1995 – 96: tenured professor, Universidad Nacional de Colombia

1992-94: visiting scientist at ICRA

1990 – 95: Associate professor, Universidad de los Andes (Colombia)

Diploma thesis supervision

2 Graduate level thesis (in astrophysics) at the Universidad Nacional de Colombia

4 undergraduate thesis (in astrophysics) at the Universidad de los Andes (Colombia)

Other Teaching Duties

Regular teaching load in graduate courses (astrophysics) during tenure at the Universidad Nacional de Colombia (1995-1996), and undergraduate level physics courses at the Universidad de los Andes (1990-1995)

Work With Postdocs

NASA Goddard Space Flight Center (Maryland, USA), 1986 – 89

INFN, Frascati, 1985-86: MACRO Monopole and Cosmic Ray Observatory

III Service activities

Within ICRANet

Member of the Scientific Committee of the "Marcel Grossman Meetings on General Relativity" series

- ICRA visiting scientist, 1992-1994

Outside ICRANet

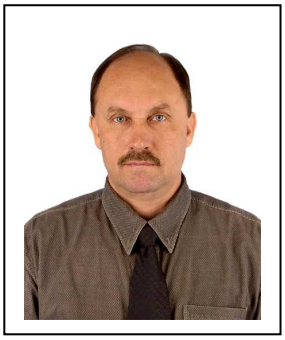
Consultant to the United Nations Office for Outer Space Affairs, on matters related to advancing basic space sciences in developing countries.

Consultant to the Colombian government (Colciencias) on scientific development policies

V Other

Additional information at: http://home.earthlink.net/~verada/

Zalaletdinov Roustam M.



Position: Professor

Period covered: 1 July 2007 – 30 June 2008

I Scientific Work

Cosmology and Macroscopic Gravity

(in collaboration with Prof. R. van den Hoogen ,St Francis Xavier University, Antigonish, NS, Canada):

1. Analysis of the structure of the system of macroscopic gravity equations with one connection correlation tensor.
2. Development of analytic methods for the exact solving of the macroscopic gravity equations.
3. Development of computer algebra methods for the exact solving of the macroscopic gravity equations.
4. Exact cosmological solutions of the macroscopic gravity by the computer algebra methods using The MG Eqs Code developed by R. van den Hoogen and R.M. Zalaletdinov (2005-2007).

Foundations of the Kaluza-Klein Theory

(in collaboration with Dr. Giovanni Montani and Francesco Cianfrani, University of Rome, Rome, Italy):

1. Formulation of the Kaluza-Klein theory by a compactification scheme based on averaging out the extra dimensions.

Physical Applications of the non-Riemannian Geometry with an Asymmetric Metric

(in collaboration with Dr. Giovanni Montani and Orchidea Maria Lecian, University of Rome, Rome, Italy):

1. Study on physical implications of the classification of the non-Riemannian geometry with an asymmetric metric in the spirit of Schouten proposed earlier.

Gravitational Waves in the Inhomogeneous Lemaitre-Tolman space-time

(in collaboration with Dr. Giovanni Montani and Dr. Massimiliano Lattanzi, University of Rome, Rome, Italy and University of Oxford, Oxford, UK):

1. Development of a formalism for the description of gravitational waves propagating on the inhomogeneous Lemaitre-Tolman background.

II Conferences, Educational and Scientific Activities

Conferences

1. Astrophysics at z>6, 4th Italian-Sino Meeting, ICRANet Coordinating Center, Pescara, Italy, July 20 - 28, 2007.

2. A Century of Cosmology - Past, Present and Future, San Servolo, Venice. Italy, August 27 - 31, 2007.

3. The Second Stueckelberg Workshop, ICRANet Coordinating Center, Pescara, Italy, September 3 -7, 2007 - plenary lecture, session chairperson.

External Scientific Activity

1. Referee of the General Relativity and Gravitation Journal (USA), Classical and Quantum Gravity Journal (UK), Journal of Physics A: Mathematical and Theoretical (UK), The European Physical Journal B (France).

2. Assistance to the Editor of the International Journal of Modern Physics D (Singapore).

The European Academy of Sciences, Physics and Earth Science Division, Brussels, Belgium, EU

1. Academician of the European Academy of Sciences and a nominated Elector for the Physics and Earth Science Division.

Curriculum Vitae

Roustam M. Zalaletdinov MSc, PhD

Date and Place of Birth: 30th August, 1956, city of Kaliningrad, Russia, USSR.

Marital Status and Children: Divorced, 1 son.

Graduate Education: Tashkent State University, Tashkent, USSR (1973-1979).

M.Sc.: Tashkent State University, Tashkent, USSR (1979).

Ph.D.: Institute of Nuclear Physics, Uzbek Academy of Sciences, Tashkent, USSR (1985).

Memberships: The Russian (formerly all-Union) Gravitational Society, USSR and Russian Federation (1987), The London Mathematical Society, UK (1995), The European Academy of Sciences, Physics and Earth Science Division, Belgium, EU (2002).

Research Fields: General Relativity and Gravitation, Cosmology, Mathematical Physics, about 60 scientific publications.

Awards and Nominations: Honorable Mention Winner essay, Contest of the Gravity Research Foundation, USA (1996), Inclusion into the list Historical Milestones": Zalaletdinov (1992) - the first covariant theory of averaging out small-scale inhomogeneities in the metric - A. Krasinski, Inhomogeneous Cosmological Models (CUP, Cambridge, 1997), Invitation to Membership, New

York Academy of Sciences, New York, USA (1994, 1997), Nomination to the International Directory of Distinguished Leadership, 10th Edition, American Biographical Institute, USA (2000), W.F. James Chair in Pure and Applied Sciences at St. Francis Xavier University, Antigonish, NS, Canada (2005-2006) and others.

Professional Career: Since 1979 permanent positions, Department of Theoretical Physics, Institute of Nuclear Physics, Uzbek Academy of Sciences, Tashkent, Uzbekistan, USSR and CIS, and since 2003 Leading Scientist (Distinguished Research Professor), Visiting Professor, International School for Advanced Studies (SISSA), Trieste, Italy (1993-1995), Research Scientist, International Center for Theoretical Physics (ICTP), Trieste, Italy (1994), Royal Society Fellow and Research Scientist, Queen Mary and Westfield College, University of London, UK (1995-1997), J.J. Sniadeccy Fellow (Cracow), N. Copernicus Astronomical Center, Polish Academy of Sciences,Warsaw, Poland (1996-1997), Adjunct Professor, Tashkent State University, Tashkent, Uzbekistan, CIS (1999-2004), Visiting Professor, International Center for Relativistic Astrophysics (ICRA), University of Rome La Sapienza", Rome, Italy (1996-2002), Senior NATO-CNR Fellow (Consiglio Nationale delle Ricerche), Rome, Italy (2001-2002), Visiting Professor, Dalhousie University, Halifax, NS, Canada (2002-2003), Visiting Professor, St. Mary University, Halifax, NS, Canada (2003), W.F. James Chair in Pure and Applied Sciences and NSERC of Canada RCD Grant Visiting Professor, St. Francis Xavier University, Antigonish, NS, Canada (2005-2006), Professor, ICRANet Coordinating Center, Pescara, Italy (2007-2008).

Activities: Member of the International Coordination Committee of the Marcel Grossmann Meetings: 8th Meeting - Jerusalem, Israel (1997), 9th Meeting - Rome (2000), 10th Meeting - Rio de Janeiro, Brazil (2003), 11th Meeting - Berlin, Germany (2006), and other Conferences, Referee of the General Relativity and Gravitation Journal (USA), Classical and Quantum Gravity Journal (UK), Journal of Physics A: Mathematical and General (UK) and others.

International Relativistic Astrophysics Ph. D.

Third Cycle 2004-07

- *Chiappinelli Anna France*
- *Cianfrani Francesco Italy*
- *Guida Roberto Italy*
- *Rotondo Michael Italy*
- *Yegoryan Gegham Armenia*

Fourth Cycle 2005-08

- *Battisti Marco Valerio Italy*
- *Dainotti Maria Giovanna Italy*
- *Khachatryan Harutyun Armenia*
- *Lecian Orchidea Maria Italy*
- *Pizzi Marco Italy*
- *Pompi Francesca Italy*

Fifth Cycle 2006-09

- *Caito Letizia Italy*
- *De Barros Gustavo Brasil*
- *Minazzoli Olivier Switzerland*
- *Patricelli Barbara Italy*
- *Rangel Lemos Luis Juracy Brasil*
- *Rueda Hernandez Jorge Armando Colombia*

Sixth Cycle 2007-2010

- *Ferroni Valerio Italy*
- *Izzo Luca Italy*
- *Kanaan Chadia Lebanon*
- *Pugliese Daniela Italy*
- *Sigismondi Costantino Italy*
- *Siutsou Ivan Belarus*

Cianfrani Francesco

Position: PhD student

Period covered:2004/2007

I Scientific Work:

Investigation of the role of spinors in a Kaluza-Klein framework;

Phenomenological consequences of undetectable dimensions;

Study of the dynamics of rotating objects in a 5-dimensional space-time;

Representation of boost transformations in a canonical Quantum Gravity setting.

II Conferences and educational activities:

Conferences and Other External Scientific Work

``2nd Stueckelberg workshop'', Pescara, September 3-7, 2007.

``4th Italian-Sino Workshop on Cosmology and Relativistic Astrophysics'', Pescara, July 20-29, 2007.

``10th Italian-Korean Symposium on Relativistic Astrophysics'', Pescara, July 25-30, 2007.

``APS April Meeting'', Hyatt Regency Riverfront Hotel, Jacksonville, Florida, April 14-17, 2007.

``High Energy, Cosmology and Strings'', Institute Henri Poincaré, Paris, December 11-15, 2006.

``XIth Marcel Grossmann Meeting'', Berlin, July 23-29, 2006.

``3rd Italian-Sino Workshop on Cosmology and Relativistic Astrophysics: Supernova, GRB and Cosmology'', Pescara, July 10-20, 2006.

``1st Stueckelberg workshop'', Pescara, June 25-30, 2006.

``Plank scale in astrophysics and cosmology'', Rome, June 19-20, 2006.

``The Russian-Italian Lifshitz-Zeldovich Meeting on Relativistic Astrophysics'', Pescara, June 27-July 3, 2005.

``2nd Italian-Sino Workshop on Cosmology and Relativistic Astrophysics: Probing the Dark Universe'', Pescara, June 11-20, 2005.

``Space-time in action'', Pavia, March 29 -April 2, 2005.

Work With Students

lectures for the undergraduate course ``Fisica Generale II'' by Prof. G. Corbò at the department of mathematics, University of Rome ``Sapienza''.

lectures for the IRAP-PhD course ``Relativistic Cosmology and Beyond'' by Dr. G.Montani.

III Service activities:

Within ICRANet

Scientific Organizing Committee of the ``1st Stueckelberg workshop'' and of the ``2nd Stueckelberg workshop''.

Guida Roberto

Position: PhD student

Period covered: November 2004 – November 2007

I Scientific Work

Gamma Ray Burst

II Conferences and educational activities

Conferences and Other External Scientific Work

PhD Schools:

- Scuola Nazionale di Astrofisica IX ciclo, Venezia (Italy), September 16-22, 2007.
- General Relativity trimester: Gravitational Waves, Relativistic Astrophysics and Cosmology, Paris (France), November 28 - December 7, 2006.
- XII Brazilian School of Gravitation and Cosmology, Mangaratiba (Brazil), September 10-23, 2006.
- Astrofisica Gamma e Multifrequenza: Analisi Dati e Problematiche Astroparticellari, Perugia (Italy), July 3-7, 2006.
- 1st Bego Scientific Rencontre, Nice (France), February, 6-17, 2006.
- 2nd IRAP PhD Summer School, Pescara (Italy), September 5-15, 2005.
- Gamma-ray bursts: the first three hours: Santorini summer school on gamma-ray bursts, sponsored by: European Research Training Network (RTN) on GRBs: An Enigma and a Tool, Santorini (Greece), August 29 - September 2, 2005.

Contributed talks:

- The fireshell model and the Amati relation, presented at the 4th Italian-Sino Workshop on Relativistic Astrophysics, Pescara (Italy), July 20-30, 2007.
- The Amati relation in our canonical GRB scenario, presented at the 10th Italian-Korean Symposium on Relativistic Astrophysics, Pescara (Italy), June 25-30, 2007.
- The Amati relation in the dyadosphere model, presented at the April Meeting 2007 of the American Physical Society, Jacksonville (Florida), April 14-17, 2007.
- Theoretical interpretation of the Amati relation, presented at the I Cesare Lattes meeting on Gamma-Ray Bursts, Black Holes and Supernovae, Mangaratiba (Brazil), February 25 - March 3, 2007.
- The effective 3D structure of the ISM in interpreting the gamma emission of GRB060124, presented at XII Brazilian School of Gravitation and Cosmology, Mangaratiba (Brazil), September 10-23, 2006.
- Theoretical interpretation of GRB 060124, presented at the XI Marcel Grossmann Meeting on General Relativity, Berlin (Germany), July 23-29, 2006.

- Emergence of self similar properties in the evolution of density perturbations, presented at IX Italian-Korean Symposium on Relativistic Astrophysics, Seoul (South Korea) - Mt. Kumgang (North Korea), July 19-24, 2005.

Meetings:

- (2004 - Present) Monthly seminars on high energy astrophysics, cosmology and general relatività held at University of Rome “La Sapienza”.
- GRB 2007, Santa Fe (New Mexico, USA), November 5-9, 2007.
- 4th Italian-Sino Workshop on Relativistic Astrophysics, Pescara (Italy), July 20-30, 2007.
- 10th Italian-Korean Symposium on Relativistic Astrophysics, Pescara, (Italy), June 25-30, 2007.
- The April Meeting 2007 of the American Physical Society, Jacksonville (Florida), April 14-17, 2007.
- I Cesare Lattes meeting on Gamma-Ray Bursts, Black Holes and Supernovae, Mangaratiba (Brazil), February 25 - March 3, 2007.
- SWIFT birthday, Merate (Italy), November 29 - December 1, 2006.
- 6th Science Analysis System (SAS) Workshop, ESA's European Space Astronomy Center (ESAC), San Lorenzo de El Escorial (Spain), May 30 - June 2, 2006.
- Workshop sull'Analisi Dati di GRB con Swift, Trieste (Italy), March 24, 2006.
- IX Italian-Korean Symposium on Relativistic Astrophysics, Seoul (South Korea)- Mt. Kumgang (North Korea), July 19-24, 2005.
- 5th Science Analysis System (SAS) Workshop, ESA's European Space Astronomy Center (ESAC), San Lorenzo de El Escorial (Spain), June 7-10, 2005.
- 2nd Italian-Sino Workshop on Cosmology and Relativistic Astrophysics: Probing the Dark Universe, Pescara (Italy), June 11-20, 2005.
- The Russian-Italian Lifshitz-Zeldovich Meeting on Relativistic Astrophysics, June 27- July 3, 2005.
- 5th AGILE Science Workshop, The galactic center and other cosmic accelerators, CNR, Rome (Italy), February 2, 2005.
- The SWIFT day, Monte Porzio Catone Astronomical Observatory, Roma (Italy), January 12, 2005.
- 55th International Astronautical Federation Congress (IAC), Vancouver (Canada), October 4-8, 2004.
- Testing the Equivalence Principle in space and on ground, Pescara (Italy), September 20-23, 2004.
- 1st Italian-Sino Workshop on Cosmology and Relativistic Astrophysics, Roma-Pescara (Italy), July 7-17, 2004
- VIII Italian-Korean Symposium on Relativistic Astrophysics, Pescara (Italy), August 18-23, 2003.
- SUCCESS Student Contest, ESA's European Space Research and Technology Centre (ESTEC), Noordwijk (the Netherlands), November 2-9, 2002.

Work With Students

- Degree Commission Board member as master thesis Supervisor's Assistant at the University of Rome “La Sapienza”, for the work: “The Jeans mechanism for the gravitational collapse”.

Diploma thesis supervision

Supervision for the Master Degree Thesis of the student Walter Ferrara on : “Cosmological application of GRBs”

Other Teaching Duties

Collaboration grant from the Physics Department of the University of Rome “La Sapienza” as Teaching Assistant for the Physics Lectures class (60 hours) at the Chemistry and Pharmacology

Degree course from November 2005 to June 2006.

Rotondo Michael

Position: IRAPh.D. student

Period covered: 2004-2007

I Scientific Work

Electrodynamic properties of bulk matter at nuclear densities

Equation of state of hot white dwarfs

II Conferences and educational activities

Conferences and Other External Scientific Work

SECOND ITALIAN-SINO WORKSHOP (10-20 June 2005, Pescara, Italy) : PARTECIPANT WITH THE TALK " On the Relativistic Collapse of the Atom".

9th ITALIAN-KOREAN SYMPOSIUM ON RELATIVISTIC ASTROPHYSICS (19-24 July 2005 Seoul-Mt. Kumgang, South and North Korea): PARTECIPANT WITH THE TALK " Equilibrium configurations of hot white dwarfs".

"THE THIRD ITALIAN-SINO WORKSHOP ON COSMOLOGY AND RELATIVISTIC ASTROPHYSICS ", Pescara (Italy), July 10-20, 2006 : PARTECIPANT WITH THE TALK " Relativistic Thomas-Fermi approximation for nuclear matter in bulk".

"APS April meeting 2007 ", Jacksonville (Florida, USA), 14-17 April 2007: PARTECIPANT WITH THE TALK "Electrodynamics of nuclear mutter in bulk : analytical solutions".

"10th Italo-Korean Symposium on Relativistic Astrophysics ", Pescara (Italy), 25-30 June 2007: PARTECIPANT WITH THE TALK "On the electrodynamics of neutron cores ".

"4th Sino-Italian Symposium on Relativistic Astrophysics ", Pescara (Italy), 20-30 July 2007: PARTECIPANT WITH THE TALK "On the electrodynamical properties of nuclear matter in bulk".

Yegoryan Gegham

Position: IRAP Ph.D. student

Period covered: 2004-2007

I Scientific Work

Observational cosmology: study of Cosmic Microwave Background maps, dark energy cosmological models.

II Conferences and educational activities

ICRANet workshops (2005,2006, 2007)

CURRICULUM VITAE

Name: Gegham Yegoryan

Born: 07 March 1982, Yerevan, Armenia

Nationality: Armenian

Marital Status: Single

Permanent Address: Department of Theoretical Physics, Yerevan Physics Institute. Alikhanyan Brothers 2, 375036, Yerevan, Armenia

E-mail: gegham@icra.it

EDUCATION

1998	A. Shirakaci College
2002	Science Bachelorship. Department of Physics, Yerevan State Univercity
2004	Science Magistracy. Department of Physics, Yerevan State Univercity
2004-2007	Ph.D student of ICRA.
2007	Ph.D. degree, Yerevan Physics Institute

SPECIALIZATION

Main Field: Cosmology

Current Research: Study of properties of Cosmic Background Radiation Maps, Dark energy Models

Supervisor: Prof. V.G. Gurzadyan

Battisti Marco Valerio

Position: PhD Student

Period covered: 2005-2007

I Scientific Work:

Quantum Cosmology

II Conferences and educational activities:

Conferences and Other External Scientific Work

-September 2007 "The 2nd Stueckelberg Workshop", (main lectures by Prof. T.Thiemann) Pescara, 3-8 September.

Title of talks:

1) *Quantum cosmology in a generalized uncertainty principle framework*
2) *Cosmological implications of an evolutionary quantum gravity*

-July 2007 "4th Italian-Sino Workshop on Relativistic Astrophysics", Pescara, 20-30 July.

Title of talk:

Minisuperspace dynamics in a generalized uncertainty principle framework

-June 2007 ``ICRA seminars on Quantum Gravity'', Rome.

Title of seminar:

Mixmaster dynamics from the Loop Quantum Cosmology point of view

Diploma thesis supervision

-2007: Assigned as tutor to the undergraduate student Riccardo Belvedere for his degree thesis at University of Rome "La Sapienza": *"On the semiclessical limit of a quantum Universe"*

CV - M.V. Battisti

Education

- 28 November-17 December 2006: followed the doctoral school “Gravitational Waves, Relativistic Astrophysics and Cosmology”, held at Centre Emil Borel, Institut Henry Poincare', “Université Pierre et Marie Curie” (Paris VI), in Paris.
- 10-23 September 2006: followed the doctoral school “XII Brasilian School of Cosmology and Gravitation”, held in Rio de Janeiro.

Tutoring experinces

- 2007: has been assigned as tutor to the undergraduate student Riccardo Belvedere for his degree thesis at Universit of Rome “Sapienza": “On the semiclessical limit of a quantum Universe”.

Talks

- 3-8 September 2007: participated in the workshop “II Stueckelberg Workshop” (lecturers: Prof. T. Thiemann, Prof. T. Damour) , in Pescara (Italy), with two contributions “Quantum cosmology in a generalized uncertainty principle frame work” and “Cosmological implications of an evolutionary quantum gravity”.
- 20-30 July 2007: participated in the workshop “4th Italian-Sino Workshop on Relativistic Astrophysics”, in Pescara (Italy), with one contribution “Minisuperspace dynamics in a generalized uncertainty principle frame work”.
- 19-20 June 2006: participated in the meeting “Plank scale in astrophysics and cosmology”, in Rome, with one contribution “Is minisuperspace arena for GUP approach?”.

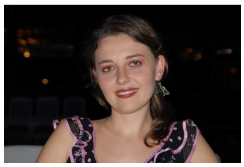
Meetings

- Participated in the meeting “Noncommutative Spacetime Geometries", 25-31 March 2007, held at Alessandria.
- Participated in the meeting “1st Bego rencontre", 6-16 February 2006, Nice.

Seminars

- Gave one contribution to the ICRA Seminars on Quantum Gravity 2007 at “Università degli Studi di Roma La Sapienza”: (i) “Mixmaster dynamics from the Loop Quantum Cosmology point of view”.
- Gave two contributions to the ICRA Seminars on Quantum Gravity 2006 at “Università degli Studi di Roma La Sapienza”: (i) “The framework of Loop Quantum Cosmology”. (ii) “Gereralized uncertainty principle and noncommutative spacetime.

Dainotti Maria Giovanna



Position: PhD student

Period covered: 2005-2007

I Scientific Work

Dainotti M. G., Bernardini M. G., Bianco C. L., Caito L., Guida R., Ruffini R., "GRB060218 and GRBs associated to Supernovae Ib/c", Astron. & Astrophys., 471, L29, 2007.

- Bernardini M. G., Bianco C. L., Caito L., Dainotti M. G., Guida R., Ru_ni R., "GRB970228 and a class of GRBs with an initial spikelike emission", Astron. & Astrophys. 474, L13-L16 , 2007.

- Bernardini M. G., Bianco C. L., Caito L., Chardonnet P., Corsi A., Dainotti M. G., Fraschetti F., Guida R., Ruffini R., Xue S. S., "GRB970228 as a prototype for short GRBs with afterglow", Nuovo Cimento, 121B, 1439, 2006.

Dainotti M. G., Bernardini M. G., Bianco C. L., Caito L., Guida R., Ruffini R., "On GRB 060218 and binaries as progenitors of GRB-SN systems ", in the Proceedings of "4th Italian-Sino Workshop on Relativistic Astrophysics" in Pescara, Italy, July 20-30, 2007, in press.

-Bernardini M. G., Bianco C. L., Caito L., Dainotti M. G., Guida R., Ruffini R., Xue S. S., "GRB 970228 and the class of GRBs with initial spikelike emission: do they follow the Amati relation?", in the Proceedings of "4th Italian-Sino Workshop on Relativistic Astrophysics" in Pescara, Italy, July 20-30, 2007, in press.

-Caito L., Bernardini M. G., Bianco C. L., Dainotti M. G., Guida R., Ruffini R., "GRB060614: a progress report" in the Proceedings of "4th Italian-Sino Workshop on Relativistic Astrophysics" in Pescara, Italy, July 20-30, 2007, in press.

- Guida R., Bernardini M. G., Bianco C. L., Caito L., Dainotti M. G., Ru_ni R., "The Amati relation within the fireshell model" in the Proceedings of "4th Italian-Sino Workshop on Relativistic Astrophysics" in Pescara, Italy, July 20-30, 2007, in press.

-Bianco C. L., Bernardini M. G., , Caito L., Dainotti M. G., Guida R., Ru_ni R., "The fireshell model and the GRB scenario" in the Proceedings of "4th Italian-Sino Workshop on Relativistic Astrophysics" in Pescara, Italy, July 20-30, 2007, in press.

- Ruffini R., Bernardini M. G., Bianco C. L., Caito L., Chardonnet P., Dainotti M. G., Fraschetti F., Guida R., Rotondo M., Vereshchagin G., Vitagliano L., Xue S. S., "The Blackholic energy and the canonical Gamma-Ray Burst", in the Proceedings of "XII Brazilian School of Cosmology and Gravitation" in Mangaratiba, Brazil, September 10-23, 2006, AIP Conference Proceedings, 910, 55, 2007.

- Dainotti M. G., Bernardini M. G., Bianco C. L., Caito L., Guida R., Ru_ni R., "On GRB 060218 and the GRBs related to Supernovae Ib/c", in the Proceedings of "XI Marcel Grossmann meeting on General Relativity" in Berlin, Germany, July 23-29, 2006, in press.

- Guida R., Bernardini M. G., Bianco C. L., Caito L., Chardonnet P., Dainotti M. G., Fraschetti F., Ruffini R., Xue S. S., "Theoretical interpretation of GRB060124", in the Proceedings of "XI Marcel Grossmann meeting on General Relativity" in Berlin, Germany, July 23-29, 2006, in press.

-Bernardini M. G., Bianco C. L., Caito L., Chardonnet P., Corsi A., Dainotti M. G., Fraschetti F., Guida R., Ruffini R., Xue S. S., "GRB970228 as a prototype for the class of GRBs with an initial spikelike emission ", in the Proceedings of "XI Marcel Grossmann meeting on General Relativity" in Berlin, Germany, July 23-29, 2006, in press.

- Bernardini M. G., Bianco C. L., Caito L., Chardonnet P., Corsi A., Dainotti M. G., Fraschetti F., Guida R., Ruffini R., Xue S. S., "GRB980425 and puzzling URCA 1 emission", in the Proceedings of "XI Marcel Grossmann meeting on General Relativity" in Berlin, Germany, July 23-29, 2006, in press.

- Caito L., Bernardini M. G., Bianco C. L., Dainotti M. G., Guida R., Ru_ni R., "Theoretical interpretation of GRB011121", in the Proceedings of "XI Marcel Grossmann meeting on General Relativity" in Berlin, Germany, July 23-29, 2006, in press.

- Ruffini R., Bernardini M. G., Bianco C. L., Caito L., Chardonnet P., Dainotti M. G., Fraschetti F., Guida R., Rotondo M., Vereshchagin G., Vitagliano L., Xue S. S., "Gamma Ray Bursts" in the Proceedings of "XI Marcel Grossmann meeting on General Relativity" in Berlin, Germany, July 23-29, 2006, in press.

-Bianco C. L., Bernardini M. G., , Caito L., Dainotti M. G., Guida R., Ru_ni R., "The fireshell model and the Swift Era" in the Proceedings of "XI Marcel Grossmann meeting on General Relativity" in Berlin, Germany, July 23-29, 2006, in press.

-Bianco C. L., Bernardini M. G., , Caito L., Dainotti M. G., Guida R., Ru_ni R., "Theoretical interpretation of short and long GRBs" in the Proceedings of "XI Marcel Grossmann meeting on General Relativity" in Berlin, Germany, July 23-29, 2006, in press.

-Bianco C. L., Bernardini M. G., , Caito L., Dainotti M. G., Guida R., Ru_ni R., "Theoretical interpretation of luminosity and spectral properties of GRB 031203" in the Proceedings of "XI Marcel Grossmann meeting on General Relativity" in Berlin, Germany, July 23-29, 2006, in press.

II Conferences and educational activities

Contributed talks:

July 2007 "GRB 060218 and the binaries as progenitors of GRB-SN system", presented at the "4th Italian-Sino Workshop on Relativistic Astrophysics", Pescara (Italy), July 20-30, 2007, http://www.icra.it/Italian-Sino_Workshop/fourth/english/welcome.htm.

June 2007 "GRB 060218 and the the comparison with the other GRBs ", presented at the "10th Italian- Korean Symposium on Relativistic Astrophysics, Pescara (Italy), June 25-30, 2007. http://www.icra.it/ITKO/10/welcome.htm.

April 2007 "GRB060218: a good example of GRB-SN connection", presented at the "The April Meeting 2007 of the American Physical Society", Jacksonville (Florida), April 14-17, 2007, http://www.aps.org/meetings/april/index.cfm.

February 2007 “GRB 060218 within the theoretical framework of the fireshell”, presented at the “Cesare Lattes meeting on Gamma-Ray Bursts, Black Holes and Supernovae”, Mangaratiba (Brazil), February 25 - March 3, 2007, http://www.icra.it/ICRA_Networkshops/lattes_meeting/first/welcome.htm

September 2006 “On GRBs 060218: one of the most peculiar source”, presented at “XII Brazilian School of Gravitation and Cosmology”, Mangaratiba (Brazil), September 10-23, 2006, http://www.cbpf.br/$\sim$cosmogra/arquivos/princbscg.htm.

July 2006 “On GRB 060218 and the GRBs related to Supernovae Ib’¸’, presented at “XI Marcel Grossmann Meeting on General Relativity”, Berlin (Germany), July 23-29, 2006, http://www.icra.it/mg/mg11/welcome.htm.

Poster:

June 2006 : ”Theoretical interpretation of GRB970228” in the conference ”Swift and GRBs: Unveiling the Relativistic Universe”, Venezia (Italy), June 5-10, 2006.

November 2007 : “Short and canonical GRBs”; “Gamma-Ray Bursts 2007”, Santa Fe, New Mexico (USA), November 5-9, 2007.

November 2007 “Theoretical interpretation of the Amati relation within the “Fireshell” model”; “Gamma-Ray Bursts 2007”, Santa Fe, New Mexico (USA), November 5-9, 2007.

November 2007 “GRB060614: a progress report” “Gamma-Ray Bursts 2007”, Santa Fe, New Mexico (USA), November 5-9, 2007.

Khachatryan Harutyun

Position: IRAP Ph.D. student

Period covered: 2005-2008

I Scientific Work

Observational cosmology: study of Cosmic Microwave Background maps, dark energy cosmological models.

II Conferences and educational activities

ICRANet workshops (2007)

CURRICULUM VITAE

Surname: *Khachatryan*

Name: *Harutyun*

Address*: Republic of Armenia, Yerevan, A. Khachatryan 1, apt 1*

Date of birth: *10 June 1981*

Experience

1998-2004 Yerevan State University, Physics Department

Physicist-theorist, Master degree

2005- IRAP PhD student

2006 - researcher, Dept. Theoretical Physics, Yerevan Physics Institute

Research objectives

Cosmology (CMB and dark energy).

Publications

1. D. B. Saakian, Chin-Kun Hu and H.G.Khachatryan, Solvable biological models with general fitness functions and multiple mutations in parallel mutation-selection scheme, Phys. Rev. E 70, 041908 (2004),

2. H.G. Khachatryan, Invariants and solutions of Gurzadyan-Xue dark energy cosmological models, Mod. Phys. Let. A ***22*** *(2007).*

3. H.G. Khachatryan, G.V. Vereshchagin, G. Yegorian, Luminosity distance in GX cosmological models, Il Nuovo Cimento B 122, 197 (2007).

4. H. J. M. Cuesta, H. Dumet M., C. Furlanetto, H. G. Khachatryan, S. Mirzoyan and G. Yegorian, Hubble Diagram of Gamma-Rays Bursts calibrated with GX Cosmology, astro-ph/0707.1297.

5. V.G.Gurzadyan, A.A.Starobinsky, A.L.Kashin, H.Khachatryan, G.Yegorian, On Axial and Plane-Mirror Inhomogeneities in the WMAP3 Cosmic Microwave Background Maps, arXiv:0709.0886

Lecian Orchidea Maria

Position: PhD student

Period covered:2005-2007

I Scientific Work:

During my PhD, I have worked on modified gravity and dark energy, extended Kaluza-Klein models and alternative compactification scenarios, non-Riemannian geometries and the coupling between spinors and torsion.

II Conferences and educational activities

Conferences and Other External Scientific Work

24-29 September 2007: participated in the meeting *" XCIII Congresso Nazionale Società Italiana di Fisica"* in Pisa (Italy), with the contribution "Dark energy as a relic of the vacuum-energy cancellation".

18-23 September 2006: participated in the meeting *"XCII Congresso Nazionale Societa' Italiana di Fisica"* in Turin (Italy), with the contribution "The role of torsion within a gauge theory of the Lorentz group".

Diploma thesis supervision :winter-spring2007: was assigned as tutor to the undergraduate student Michele Castellana for his degree thesis at Università of Rome "Sapienza" : *"BRST symmetry associated to the local Lorentz Group for the action of General Relativity"*.

Other Teaching Duties: autumn-winter 2007: ''Fundamentals of calculus and analysis II'' practical at the Architecture department of Università degli Studi di Roma La Sapienza

CV - O.M. Lecian

Education

- 11-20 September 2007: followed the doctoral school "Central European School in Particle Physics", held at Charles University, Prague.
- WinterSpring 2007: followed the lectures (La Sapienza PhD lectures) "Phenomenology of the Standard Model and its Supersymmetric extensions", held by Dr. Franco, Dr.ssa Mele, Dr. Mena, Dr. Silvestrini at "Università degli Studi di Roma La Sapienza".
- 28 November-17 December 2006: followed the doctoral school "Gravitational Waves, Relativistic Astrophysics and Cosmology", held at Centre Emil Borel, Institut Henry Poincaré, "Université Pierre et Marie Curie" (Paris VI), in Paris.
- Autumn 2006: followed the lectures "Riemannian Geometry" given by Prof. S. Marchiafava, and "Group representation theory" given by Prof. C. De Concini, held at "Università degli Studi di Roma La Sapienza".
- Spring 2006: followed the doctoral lectures (IRAP PhD) "Geometrodynamics and matter fields" held by Dott. G.Montani at "Università degli Studi di Roma La Sapienza".
- January 2006: followed the doctoral lectures (IRAP PhD) "Mathematical Problems Of General Relativity Theory" held by Prof. D. Christodoulou at ETH in Zurich.
- 2 December 2005: took the TOEFL (ibt). The score earned (108/120).

- 5 November 2005:T took the GRE general test (cbt): verbal ability 590/800, quantitative ability 750/800, analytical writing 4.5/6.0.
- Autumn 2005: followed the lectures “An introduction to Quantum Gravity” held by Dott. G.Amelino-Camelia at “Università degli Studi di Roma La Sapienza”.
- Autumn 2005: was admitted to the IRAP PhD (International Relativistic Astrophysics PhD) at “Università degli Studi di Roma La Sapienza".
- 14 July 2005: obtained degree in Physics from “Università degli Studi di Roma La Sapienza" (110/110). The thesis is “On the geometrization of the electro-weak model by a 5-dimensional gauge theory of the Lorentz group within a Kaluza-Klein scheme", with Prof. Remo Ruffni and Dott. Giovanni Montani as advisors.
- October 1999: started reading Physics at University of Rome “La Sapienza". After the fundamental courses, chose a theoretical orientation and attended lectures on QED and the Standard Electro-Weak model (Prof. N.Cabibbo), relativistic quantum field theory and renormalization group (Prof. M.Testa), general relativity and gravitational waves (Prof.V.Ferrari), statistical field theory and spin glasses (Prof.E.Marinari).
- 16 July 1999: graduated from High School “Convitto Nazionale V. Emanuele II" in Rome (“Experimental European Classic Diploma”, 100/100). Also received an equivalent Diploma, acknowledged by the French Embassy.

Tutoring experinces

- 2007: has been assingned as tutor to the undergraduate student Michele Castellana for his degree thesis at Università of Rome “Sapienza" : “BRST symmetry associated to the local Lorentz Group for the action of General Relativity”.

Talks

- 24-29 September 2007: participated in the meeting “XCIII Congresso Nazionale Società Italiana di Fisica” in Pisa (Italy), with the contribution “Dark Energy as a relic of the vacuum-energy cancellation”.
- 3-8 September 2007: participated in the workshop “2nd StueckelbergWorkshop” (lecturers: Prof. T. Thiemann, Prof. T. Damour) , in Pescara (Italy), with three contributions: “Stueckelberg: a forerunner of Modern Physics II”, “Exponential Lagrangian for the gravitational field and the problem of vacuum energy" and “Fundamental symmetries of the extended space-time".
- 20-30 July 2007: participated in the meeting “4th Italian-Sino Workshop on Relativistic Astrophysics", in Pescara (Italy), with the contribution “Scalar-tensor analysis of an exponential Lagrangian for the Gravitational Field".
- 25-30 June 2007: participated in the meeting “10th Italian-Korean Symposium on Relativistic Astrophysics", in Pescara (Italy), with the contribution “The role of torsion in fermion interactions".
- 13-17 April 2007: participated in the “APS April Meeting", in Jacksonville (Florida, USA), with the contribution “Lorentz Gauge Theory and its Phenomenological Implications".
- 18-23 September 2006: participated in the meeting “XCII Congresso Nazionale Società Italiana di Fisica" in Turin (Italy), with the contribution “The role of torsion within a gauge theory of the Lorentz group".

- 23-29 July 2006: participated in the meeting “Eleventh Marcel Grossmann Meeting on General Relativity" in Berlin (Germany), with the contribution “Electro-Weak Model within a 5-dimensional Lorentz group theory".
- 10-20 July 2006: participated in the meeting “The 3rd Italian-Sino Workshop on Relativistic Astrophysics", in Pescara (Italy), with the contribution “Accelerated Universe from an exponential Lagrangian of the metric field”.
- 26 June-3 July 2006: participated in the meeting “The 1th Stueckelberg Workshop" (main lecturer: Prof. A. Ashtekar), in Pescara (Italy), with two contributions: “Stueckelberg: a forerunner of Modern Physics” and “Electro-weak Model within the framework of Lorentz gauge theory: Ashtekar variables? ".
- 5-16 February 2006: participated in the international meeting “The 1th Bego Scientific Rencontre” in Nice (France), with the contribution "Lorentz gauge theories and the Electro-Weak model ".

Meetings

- Participated in the meeting “Plank scale in astrophysics and cosmology”, 19-20 June 2006, held at “Università degli Studi di Roma La Sapienza”, Rome.
- Participated in two international meetings on quantum gravity and relativistic astrophysics:
    i. “II Italian-Sino Workshop on Relativistic Astrophysics: Probing the Dark Universe”, 10-20 June 2005, Pescara (Italy);
    ii. “The Russian-Italian Lifshitz-Zeldovich Meeting on Relativistic Astrophysics”, 27 June-1 July, Pescara (Italy).

Pizzi Marco

I was born in Rome, in 12/12/1981.

Maturita' scientifica, Liceo A. Righi di Roma, 96/100; 2000.

Master Degree University of Rome “La Sapienza”, 110/110 cum laude, 16/7/2005

Ph.D fellowship in the IRAP PhD. Program, from 1/11/2005

Seminars, schools and international meetings followed:

- First Bego Scientific Rencontre 5-16 February 2006.
- 1 month in Paris for the school: Gravitational Wawes, Relativistic Astrophysics and Cosmology, 1 November-4 December 2006; organizer T. Damour, N. DeRuelle
- I Cesare Lattes Meeting on GRBs, Black Holes and Neutron Stars, Rio de Janeiro, February 25-3March 2007
- 10th Italian-Korean Symposium on Relativistic Astrophysics, June 25 - 30 2007, Pescara
- 4th Italian-Sino Workshop on Relativistic Astrophysics, July 20 - 30 2007, Pescara, Italy
- II Stueckelberg Workshop, 3-8 September, Pescara

Last talks delivered:

- "Some features of a new 2-soliton solution of the Einstein-Maxwell equations", at the MGM XI, 2006.
- “The fields of a naked singularity and black hole in mutual equilibrium ” at the 4th Italian-Sino Workshop
- "Electric force lines of the double Reissner-Nordstrom solution" at the II Stueckelberg Workshop

Personal works:

- “Gravitational field and electric force lines of a new 2-soliton solution”, IJMPD Vol. 16, No. 6 (2007) 1087-1108
- “Electrical force lines of a 2-soliton solution of the Einstein-Maxwell Equations”, proceeding of the XI MGM
- “The fields of a naked singularity and a black hole in mutual equilibrium”, (with A. Paolino) proceeding of the 4th Italian-Sino Workshop
- “Electric Force Lines of the double Reissner-Nordstrom exact solution”, (with A. Paolino) to be published

Works in Progress:

We are working (with prof. Belinski) on the problem of the model of the Reissner-Nordstrom metric as a thin charged shell with tangential pressure. In particular we have found the equation of state needed to have a static shell, and we are now working on the stability conditions.

We are working also on the quasiclassical tunneling on the Schwarzschild metric (in relation with the “Hawking radiation” problem). In particular we want to show some problems encountered by some procedure appeared recently in literature, which makes the use of the Painleve coordinates.

However my interests span on all the theoretical aspects of General Relativity, from the classical cosmological models to the modern approach to gravity attempted by Quantum Loop Gravity and the experimental problems linked to it.

I have also a basic knowledge of Statistical Mechanics and Quantum Field Theory.

Caito Letizia

Dipartimento di Fisica

Università di Roma “La Sapienza”

P.le Aldo Moro 5

00185 Roma, Italy.

Telephone: +39 06 4991 4397

E-mail: letizia.caito@icra.it

PERSONAL DATA

Date of birth: June 14, 1981

Place of birth: Roma , Italy.

Citizenship: Italian.

Home address: via Colle S. Pietro 26, 03100 Frosinone (FR), Italy.

Home telephone: +39 0775 854531.

Mobile telephone: +39 347 0686438.

EDUCATION

November 2007 *Physics Department University of Rome “La Sapienza”, Rome, Italy.*

November 2006 *Physics Department, University of Rome “La Sapienza”, Rome, Italy.*

Admitted to the **International Relativistic Astrophysics Ph.D. Program (IRAP PhD)** granted with a fellowship by the six participating institutions: ETH Zurich, Freie Universität Berlin, Observatoire de la Côte d’Azur, Université de Nice - Sophia Antipolis, Università di Roma “La Sapienza”, Université de Savoie (http://www.icra.it/IRAPPhD/.)

May 2006 *Physics Department University of Rome “La Sapienza”, Rome, Italy.*

Master Degree in Physics, grade: 110/110 cum laude.

Thesis advisors: Prof. R. Ruffini, Dr. C.L. Bianco.

“Theoretical interpretation of GRB011121”.

July 2000 *Scientific High School “F. Severi”, Frosinone (FR), Italy.*

Scientific High School Diploma, grade: 100/100.

COMPUTER SKILLS

Operating Systems: Windows (very good).

Data Analysis: Gnuplot (good), Excel (good).

Typesetting and Presentations: LaTeX(very good), OpenOffice.org (very good).

LANGUAGES

Italian: Native language.

English: Fluent.

French: Good.

RESEARCH INTERESTS

- High Energy Astrophysics: Gamma-Ray Bursts.
- Cosmology.

PROFESSIONAL MEMBERSHIPS

Member of the American Physical Society (APS).

Member of the Italian Physical Society (Società Italiana di Fisica (SIF)).

Member of the International Center for Relativistic Astrophysics (ICRA).

Member of the International Center for Relativistic Astrophysics Network (ICRANet).

De Barros Gustavo

Position: PhD Student

Period covered: November 2006 - Now

I - Scientific Work

Cosmology , Cosmic Microwave Background, Gamma Ray Bursts, Relativistic Thermodynamics.

curriculum vitae

Personal Data

Full Name

de Barros, Gustavo

Place, date of birth

Rio de Janeiro – Brasil, 18 March of 1983

Nationality

Brazilian

Sex, Marital Status

Male, Single

Education

2006–now *PhD in Relativistic Astrophysics*, International Center for Relativistic Astrophysics, University of Rome “La Sapienza”, Rome–Italy Second Year, the degree will be earned on November 2009.

2004–2006 *Master in Astronomy*, Observatório do Valongo, Universidade Federal do Rio de Janeiro, Rio de Janeiro - RJ - Brasil

2000–2004 *Bachelor in Physics*, Instituto de Física, Universidade Estadual do Rio de Janeiro, Rio de Janeiro - RJ - Brasil

2000–2004 *Licenciate in Physics*, Instituto de Física, Universidade Estadual do Rio de Janeiro, Rio de Janeiro - RJ - Brasil

Languages

Native Portuguese

Very good Italian

Good Spanish, English

Little French, German

Computing Skills

Operative Systems: Windows

Programming Languages: Fortran (77) Numerical Methods in Physics

Scientific: Maple, Mathematica

Symbolic and Numeric Calculus: Plotting Engines Gnuplot, Microcal Origin, Excel Visualization of mathematical functions and data

Typography: Latex, OpenOffice, Word Typography of scientific texts

Research interests

Cosmology

General Relativity

High Energy Astrophysics: Gamma Ray Bursts

Publications

2004 *Assimetria Gaussiana e Formação de Estruturas*. VILLAS DA ROCHA, Jaime F.; BARROS, Gustavo de. Boletim da Sociedade Astronômica Brasileira, v. 25, n.1, 2004.

2003 *Gradientes Conjugados, uma compilação detalhada*. CORRÊA, Eduardo Dias; BARROS, Gustavo de; CARVALHO, Luiz M. In: XXVI Congresso Nacional de Matemática Aplicada e Computacional, 2003, São José do Rio Preto. Anais do XXVI CNMAC, 2003. v. 1. p. 290-290.

2002 *Centro de referência para a solução de sistemas lineares*. BARROS, Gustavo de; CORRÊA, Eduardo Dias; CARVALHO, Luiz M. In: XXV Congresso Nacional de Matemática Aplicada e Computacional, 2002, Nova Friburgo. Anais do XXV Congresso Nacional de Matemática Aplicada e Computacional. Rio de Janeiro: SBMAC, 2002. v. 1. p. 35-35.

2002 *Métodos iterativos em Scilab com comunicação reversa*. CORRÊA, Eduardo Dias; BARROS, Gustavo de; CARVALHO, Luiz M. In: XXV Congresso Nacional de Matemática Aplicada e Computacional, 2002, Nova Friburgo. Anais do XXV Congresso Nacional de Matemática Aplicada e Computacional. Rio de Janeiro : SBMAC, 2002. v. 1. p. 113.

2001 *Tracing Limitations of Dense Astrometric Catalogues Using the Valinhos Radio Stars Program*. ANDREI, A. H.; PENNA, Jucira Lousada; ASSAFIN, Marcelo; BARROS, G. In: XXVII Reunião Anual da Sociedade Astronômica Brasileira, 2001, Águas de São Pedro (São Paulo). Boletim da Sociedade Astronômica Brasileira, 2001. v. 21. p. 85-86.

Meetings, Courses and Workshops

September-2007 "Scuola Nazionale di Astrofisica" Venezia - Italia, Sep. 16-22.

July-2007 "IV Italian-Sino Workshop on Relativistic Astrophysics", Pescara - Italia, Jul. 20-30.

June-2007 "X Italian-Korean Symposium on Relativistic Astrophysics", Pescara - Italia, Jun. 25-30.

February-2007 ”Cesare Lattes Meeting on GRB’s, Black Holes and Supernovae", Rio de Janeiro - Brasil, Feb. 25 - Mar. 3.

December-2006 ”High Energy, Cosmology and Strings” Paris - France, Dec. 11-15.

November-2006 ”From geometric to numerics” Paris - France, Nov. 20-24.

November-2006 ”Gravitational Wave Data Analysis” Paris - France, Nov. 13-17.

September-2005 ”INPE Advanced Course I - A roadmap for cosmology" São José dos Campos – SP - Brasil, Sep. 12-16.

August-2005 ”100 Years of Relativity International Conference", São Paulo - Brasil, Aug. 22-24

July-2005 ”XXXI Reunião Anual da Sociedade Astronômica Brasileira.", Águas de Lindóia – SP - Brasil, Jul. 31 - Aug. 4.

August-2004 ”XXV Brazilian Meeting of Particles Physics and Fields", Caxambu - MG - Brasil, Aug. 24-28.

August-2004 ”XXX Reunião Anual da Sociedade Astronômica Brasileira.", São Pedro - SP - Brasil, Aug. 8-12

September-2003 ”XXIV Encontro Nacional de Física de Partículas e Campos.", Caxambu - MG - Brasil, Sep. 30 - Oct. 04

August-2003 ”XXIX Reunião Anual da Sociedade Astronômica Brasileira.", São Pedro - SP - Brasil, Aug. 3-7

May-2003 ”XXVI Encontro Nacional de Física da Matéria Condensada.", Caxambu - MG - Brasil, May 6-10

September-2002 ”XXV Congresso Nacional de Matemática Aplicada e Computacional.", Nova Friburgo - RJ - Brasil, Sep. 16-19.

Patricelli Barbara

Position: IRAP PhD student at University of Rome “La Sapienza”

Period covered: November 2006 – October 2009

I Scientific Work

Research topics:

- Theoretical study of the charge to mass ratio of heavy nuclei and neutron cores
- Electrodynamics of nuclear matter in bulk

II Conferences and educational activities

Conferences and Other External Scientific Work

“On the charge to mass ratio of neutron cores and heavy nuclei", talk presented at 4th Italian-Sino Workshop on Relativistic Astrophysics, Pescara (Italy), July 20 - 30, 2007

Curriculum vitae of Barbara Patricelli

PERSONAL DATA

Date and Place of birth April 16, 1980, Ortona (CH), Italy

Citizenship Italian

Address Physics Department, University of Rome “La Sapienza”**,** Piazzale Aldo Moro 5**,** 00185 Roma, Italy

Telephone +39 06 4991 4299

E-mail barbara.patricelli@icranet.org

EDUCATION

October 2006: Department of Physics and ICRA (International Center for Relativistic Astrophysics), University of Rome “La Sapienza”, Italy, admission to the International Relativistic Astrophysics Ph.D. Program (IRAP PHD) with a fellowship.

July 2006: University of L’Aquila, Italy, Specialistic Degree in Physics, grade 110/110 cum laude. Title of the Thesis: “The spectral energy distribution of stars in population synthesis techniques”. Supervisors: Prof. Enzo Brocato, Dott.ssa Gabriella Raimondo.

April 2002: University of L’Aquila, Triennal Degree in Physics, grade 102/110. Title of the Thesis: “Earthquake forecast: present state and future perspective”. Supervisors: Prof. Piero Monacelli, Dott.ssa Antonella Amoruso.

Luglio 1999: Technical-Commercial High School “L. Einaudi”, Ortona (Ch), Italy, Technical High School Diploma, grade 100/100.

OBSERVATIONAL EXPERIENCES

2003: Observation of binary systems HD190042 e HD132844 with the Teramo-Normale-Telescope (TNT) in the Astronomical Observatory of Collurania-Teramo (Italy), within the program of photometric support to the search of extrasolar planets with SARG (Spettrografo Alta Risoluzione Galileo).

COMPUTERS

Operating systems: Windows, Linux; *Programmming languages*: Fortran; *Data reduction and analysis*: Midas, Iraf, Romafot; *Synthetic photometry packages*: Synphot; *Scientific*: Mathematica; *Plotting packages*: Gnuplot, SuperMongo; *Typography*: Latex

LANGUAGES

Italian: Native language

English: Spoken (good); written (good); listening comprehension (good)

RELEVANT EXPERIENCES

2005-2006: Stage at the OACT about the transformation of stellar observable quantities from the theoretical plane to the observational one in the Optical and Near-Infrared.

MEETINGS AND SCHOOLS

- 1th Cesare Lattes Meeting on Gamma Ray Bursts, Black Holes and Supernovae, Mangaratiba (Brazil), February 25 - March 3, 2007
- 10th Italian-Korean Symposium on Relativistic Astrophysics, Pescara (Italy), June 25 - 30, 2007
- 4th Italian-Sino Workshop on Relativistic Astrophysics, Pescara (Italy), July 20 - 30, 2007
- National School of Astrophysics, 9th cycle, 2th course, Isola di San Servolo - Venezia (Italy), September 16 - 22, 2007

CONTRIBUTED TALKS

July 2007: “On the charge to mass ratio of neutron cores and heavy nuclei”, contributed talk presented at ”‘IV Italian-Sino Workshop”’, Pescara (Italy), July 20-30, 2007.

PUBLICATIONS

B. Patricelli, M. Rotondo, R. Ruffini, 2007: On the charge to mass ratio of neutron cores and heavy nuclei, Italian-Sino Workshop on Relativistic Astrophysics, Pescara (Italy), July 20 - 30, 2007. To be published in the American Institute of Physics-Conference Proceedings.

Publication list

B. Patricelli, M. Rotondo, R. Ruffini, 2007: On the charge to mass ratio of neutron cores and heavy nuclei, Italian-Sino Workshop on Relativistic Astrophysics, Pescara (Italy), July 20 - 30, 2007. To be published in the American Institute of Physics-Conference Proceedings.

Rangel Lemos Luis Juracy

Personal Data

Full Name

Rangel Lemos, Luis Juracy

Place, date of birth

Maturin–Venezuela, 27 March of 1980

Nationality

Brazilian

Education

2006–2009 *PhD in Relativistic Astrophysics*, International Center for Relativistic Astrophysics, University of Rome "La Sapienza", Rome–Italy

Second Year

2004–2006 *Master in Astronomy*, Valongo Observatory/Federal University of Rio de Janeiro, Rio de Janeiro–RJ–Brazil

1999–2003 *Physicist*, Physical Departament/Federal University of São Carlos, São Carlos–SP–Brazil

Speaker and Posters

July 2007: *Fermi's approach to the study of hadronic interactions*, Italian-Sino Workshop on Relativistic Astrophysics, Pescara–Italy

February 2006: *Spatial and observational homogeneities of the galaxy distribution*, IV Workshop New Physic in the Space, Campos do Jordão–SP–Brazil

Publications in Proceedings of Meetings and Workshops

2007: *Fermi's approach to the study of hadronic interactions*, L.J. Rangel Lemos, Sabrina Casanova, S. Kelner and Remo Ruffini, Italian-Sino Workshop on Relativistic Astrophysics, July, Pescara–Italy. To be published in the American Institute of Physics–Conference Proceedings.

Meetings, Courses and Workshops

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: Cesare Lattes Meeting on GRB's, Black Holes and Supernovae, Rio de Janeiro-RJBrazil.

November 2006: Courses and Workshops on Gravitational Waves, Relativistic Astrophysics and Cosmology - Emile Borel Center/IHP, Paris-France.

February 2006: IV Workshop New Physic in the Space, Campos do Jordão-SP-Brazil.

October 2005: II School of Fundamental Interactions/DF-UFES, Vitória-ES-Brazil.

September 2005: First INPE Advanced Course, São José dos Campos-SP-Brazil.

August 2005: 100 Years of Relativity International Conference, São Paulo-SP-Brazil.

July 2004: XXV Brazilian Meeting of Particles Physics and Fields, Caxambu-MG-Brazil.

August 2004: XXX Annually Meeting of Brazilian Astronomical Society, Águas de São Pedro-SPBrazil.

February 2004: Summer Course - IFUSP, São Paulo-SP-Brazil.

August 2003: XIV Physical Winter School of UFMG, Belo Horizonte-MG-Brazil.

July 2003: Extension Course - IFT/UNESP, São Paulo-SP-Brazil.

July 2002: IV CBPF School, Rio de Janeiro-RJ-Brazil.

July 2001: Extension Course - IFT/UNESP, São Paulo-SP-Brazil.

February 2001: III CBPF School, Rio de Janeiro-RJ-Brazil.

January 2001: Introduction Course of Astronomy and Astrophysics - IAG/USP, São Paulo-SP-Brazil.

July 2000: Introduction Course of Astronomy and Astrophysics - INPE, São José dos Campos-SP-Brazil.

July 2000: LII Annually Meeting of SBPC, Brasília-DF-Brazil.

July 2000: V Brazilian Meeting of PET's Groups (ENAPET), Brasília-DF-Brazil.

Collaborations works

August 2007: Study of hadronic interactions with the Prof. Felix Aharonian - Max Planck Institute of Nuclear Physics (MPIK), Heidelberg-Germany

Rueda Hernandez Jorge Armando

Position: Relativistic Astrophysics PhD Student at Universita' degli Studi di Roma "La Sapienza"

Period covered: November 2006- November 2009

I Scientific Work

Research Topics:

- Theoretical aspects of General Relativity
- Electron-positron pairs creation around black holes
- Charge separation in neutron star cores

II Conferences and educational activities

Conferences and Other External Scientific Work

- **On the Dyadoregion of the Kerr--Newman Spacetime**, Italian-Sino Workshop on Relativistic Astrophysics, Pescara-Italy, July 2007
- **Frame dragging, Vorticity and Electromagnetic Fields in Axially Symmetric Stationary Spacetimes**, Center of Fundamental Physics-Los Andes University, Merida-Venezuela, March 2006
- **Magnetic part of Weyl tensor and Vorticity tensor in Axistationary Spacetimes of Vacuum**, Laboratory of Astronomy and Theoretical Physics-Zulia University, Maracaibo-Venezuela, December 2005
- **Vorticity tensor in Axistationary Electrovacuum Spacetimes**, Laboratory of Astronomy and Theoretical Physics-Zulia University, Maracaibo-Venezuela, December 2005
- **The double-Kerr equilibrium configurations involving one extreme object**, First Colombia-Venezuela Meeting of Relativity and Gravitation, Cartagena-Colombia, November 2005
- **Six-Parametric Exact Solution for the Exterior Gravitational Field of a Rapidly Rotating Neutron Star**, First Colombia-Venezuela Meeting of Relativity and Gravitation, Cartagena-Colombia, November 2005
- **The Magnetic Part of Weyl Tensor in Stationary Axisymmetric Spacetimes of Vacuum**, First Colombia-Venezuela Meeting of Relativity and Gravitation, Cartagena-Colombia, November 2005

- **New results of the equilibrium problem in binary systems involving one extreme object**, Second Workshop in Gravitation, Cosmology and Compact Objects, Los Andes University, Merida-Venezuela, June 2005

Curriculum Jorge Rueda

Personal Data

Full Name

Rueda Hernández, Jorge Armando

Place, date of birth

Barrancabermeja–Colombia, 24 October of 1982

Sex, Marital Status

Male, Married

Education

2006–2009 *PhD in Relativistic Astrophysics*, International Center for Relativistic Astrophysics, University of Rome "La Sapienza", Rome–Italy. Second Year

2000–2005 *Physicist*, Industrial University of Santander, Bucaramanga–Colombia. Academic Average: 4.17/5.0

Languages

Spanish Native

Italian Spoken (very good), listening comprehension (very good), written (very good)

English Spoken (good), listening comprehension (good), written (very good)

Computing Skills

Operative Systems:Linux, Windows Installation and Driving

Programming Languages: Fortran (77 and 90) Numerical Methods in Physics

Scientific: Maple, Mathematica Symbolic and Numeric Calculus

Plotting Engines: Gnuplot Visualization of mathematical functions and data

Typography: Latex Typography of scientific texts

Administrative Staff

- D’Angelo Veronica
- Di Berardino Federica
- Licastro Andrea
- Ragni Gabriella

CURRICULUM VITAE

PERSONAL INFORMATION

Surname and name: Veronica D'Angelo
Place and date of birth: Ortona (CH), 21/07/1974
Nationality: Italian
Address: Pescara, c/o ICRANET
Phone: (+39) 085 / 23054200 Fax: 085 / 4219252
E-mail: veronica.dangelo@icranet.org

EDUCATION AND TRAINING

Qualification

- Qualification in "Public Facilitated Financing Expert to Firms", got after attending a regional course organized by the Association CNOS FAP, c/o the Partner NEXUS S.r.l., lasting 150 hours, from November 2004 until March 2005.
- Qualification in "Management Audit Technician", got attending a regional course organized by EUROBIC ABRUZZO E MOLISE S.c.r.l. in collaboration with a business consulting company, *De Marinis e Di Giambattista associati*, lasting 500 hours, concluded in October 2002, after one month **stage** at "Sporting Hotel Villa Maria" in Francavilla al Mare and "Villa Serena" in Città S'Angelo.
- Degree in Economics and Business**,** achieved on the 8th OF March, 2002, at Università degli Studi "G. D'Annunzio" di Pescara, upholding a theory entitled *Implicazioni strategiche dei meccanismi di finanziamento delle Aziende Ospedaliere.* Relator Prof.ssa A. Consorti, subject: Business Strategy. Mark: 110/110 *cum laude*
- Accountancy High School Degree got in 1993 at I.T.C. "Aterno" in Pescara.

WORK EXPERIENCE

- **From 03/01/2006 – present: accountancy - administrative employed** at ICRANet, where I started to work with a project contract, followed, after a first renewal, by an employment contract. Here, I am charged of:
  - Managing the relationships with suppliers,
  - Controlling entrance invoices,
  - Calculating reimbursement and rewards to our scientific visitors,
  - Preparing payment orders for the bank,
  - Executing and verifying on-line the payments,
  - Meeting our bank referents for particular payment operations,
  - Cash holding,
  - Book-keeping. I use a specific software created *ad hoc* for our Centre.
- **From 25/07/2005 al 30/12/05: stage in PERSONNEL RESEARCH AND SELECTION at Agency ADECCO in Pescara, Via G. D'Annunzio,** during winch I got the following competences:
  - Reception of applicants, personal interview, screening of curricula and data entry,
  - Managing relationships with customs in case of personnel requests; research and selection of the requested profiles,

- Knowledge of D.lgs 276/03.
- Explaining the forms to be filled-in by the chosen applicants at the moment of the employment,

- **<u>In the year 2005</u>: little experience as promoter for Wind, at IPER in Città S.Angelo, and as person charged of inventory at AUCHAN.**
- **<u>March 2003 – June 2004</u>: training at a Work Consulting** Company**, "**Team Consulting Snc", in Pescara, during which I l learned how to manage the administrative file related to the personnel engaged in companies/firms. Referents: Rag. Fuschini Mario.
- **<u>September 2002</u>: stage in Management Auditing** at "Sporting Hotel Villa Maria" in Francavilla al Mare e "Villa Serena" in Città S'Angelo, during which I analysed, in a strategic view and in terms of efficiency and effectiveness / efficacy, the processes *business administration* relevant to storehouse-pharmacy and stationery, with the purpose of getting and establishing a system of a Total Quality Management. Referent: Director of Sporting Hotel, Angelo Tirolesi.

Foreign Languages

- Good standard of written English; fairly good level of written and spoken English. At present, I am attending a course based on the *Sandwich Method* in order to improve my skills.
- Title of attendance of a first level course of French language (nov. 2003 – feb. 2004), at Centro Territoriale Permanente in Pescara, in collaboration with Italian MIUR.

Use of PC

At present: Windows'98 and 2000. Good knowledge of Word and faily good of Excel; navigation in Internet; good knowledge of ICRANet accountancy software.

AKNOWLEDGEMENTS

Scholarship awarded at the course in <u>"Management Audit Technician"</u>.

APTITUDES AND SKILLS

Good will, devotion to my job, adaptability; good skills in relationship, organization, integration and collaboration.

INTERESTS

Acqua–gym, swimming, painting rochs, Gustav Klimt paintings, participating to artistic and cultural events in my city, cinema, language courses.

I authorize to the treatment of my personal information, ex D.lgs 196/2003

Veronica D'Angelo

Pescara, 23.11.2007

_____

PERSONAL INFORMATION

NAME	**FEDERICA DI BERARDINO**
PHONE	**0039-085-23054200**
FAX	**0039-085-4219252**
E-MAIL	**federica.diberardino@icranet.org**
NATIONALITY	Italian
DATE AND PLACE OF BIRTH	31-03-1980 PESCARA

WORK EXPERIENCE

November 2005-November 2007
- Head of Secretariat at ICRANet Pescara: coordination of secretariat work, logistic organization for meetings and workshops, translations.

May-October 2005
- Travel Agent at "Beg Viaggi" Pescara;

September-June 2005
- Italian language training courses for foreign students;

April 2005
- Congress Hostess for IN FIERA S.r.l., at "ECOTUR 2005"- Montesilvano;

December 2004
- Congress Hostess (Marcinelle 2005) for Manoppello Municipality (PE);

October-December 2004
- Customer service assistant for Terravision S.r.l. at Aeroporto d'Abruzzo, Pescara;

January-December 2004
- English courses for elementary and high school italian students;

May 2004
- Translations from/to English;
- Work for Ajilon Agency, Pescara, for distribution of books in the local schools;

March 2004
- Interviews for Customer Satisfaction, for "NETWORK Istituto di ricerca S.r.l." at Iper - Città Sant'Angelo;
- Researcher for "Informazione e servizi senza barriere"(Agency: NETWORK S.r.l.).

2001-2004
- Exhibition Hostess for IN FIERA S.r.l., at "ECOTUR –Turismo in fiera" 2001, 2002, 2003, 2004 (at Palacongressi, Montesilvano – PE);

2001-2003
- Hostess and sales promoter for the agency "Image Service", Città Sant'Angelo (PE);

1998-2000
- Birthday party organizer for kids;
- Educator and entertainment organizer in summer camps of E.N.I. in Cesenatico; additional training courses (Cooperativa Sociale D.O.C. S.c.r.l., Torino).

EDUCATION

June 2004
- Foreign Language and Literature College degree, 110/110 *cum laudem*, at University G. D'annunzio (Pescara). Final thesis on Spanish and Economic -Tourism Geography: "Problemi, tendenze e prospettive dello sviluppo socio-economico in Spagna. Casi di studio" (supervisor Prof. G. Massimi);

January 2004	▪ Researches in Spain for graduation thesis and improvement of Spanish knowledge.
September-December 2002	▪ 4 months courses at "Nazareth College" di Rochester, N.Y. (U.S.A.)and final examson English, Marketing and Spanish.
1998	▪ High School degree at Liceo Linguistico "G. Marconi", Pescara.
Ottobre 1996	▪ 1 month English classes at "Irondequoit High-School" in Rochester (N.Y.)
1992, 1994, 1995	▪ Repeted visits to England to attend english colleges for training courses; ▪ Visits to the USA (N.Y. e Massachussetts) to improve oral American-English knowledge.
SOCIAL-CULTURAL EXPERIENCES	January-March 2005: Trip to Vanuatu (Melanesian archipelago, old "New Hebrides ") for humanitarian aid experience. Voluntary work in a few islands of the archipelago and elementary learning of local language, the Bislamar.
PERSONAL SKILLS	Main studies and job experiences focused on foreign cultures and languages. University degree on Spanish and English. Daily practice with both languages through conversation and readings. The work experience in touristic exhibition and in the "in store promotion" field, in addition to the experience as entertainment organizer, helped to develop interpersonal abilities.
MOTHER-TONGUE	**ITALIAN**
OTHER LANGUAGES	**ENGLISH, SPANISH, FRENCH**
RELATIONAL ABILITIES	Team work experience, mainly in multi-cultural contexts. The two main training experiences in the US high school and later in college supported the personal and professional growth, helped to acquire an open-minded attitute towards other cultures, which are essential for cooperation and mutual respect. The work as customer service assistant, hostess and sales promoter have been relevant in acquiring professional skills in the relationship with customers: importance of communication, wich is the ability to listen to and to be listened. Development of a positive attitude towards any kind of problematic situation; problem-solving skills and working method based on the achievement of goals.
ORGANIZING COMPETENCES	Organizing ability mainly acquired trough team work in summer camps for kids and teen-agers, where showing a coordinating attitude in the group. In the same work field has been developed the spirit of adaptability, in addition to the creativity (namely invention of new games and artistic creation for entertainment). Open and charismatic personality, flexible, active, dynamic, loving challenges. Professionality based on accuracy, punctuality and strong attitude to work towards goals.
TECHNICAL SKILLS	Computer competences: Windows; Softwares: Word, Excel, Power Point. Daily use of personal computer at work: 80% of the work is based on the use of PC. 2004: Certificate for Informatics Course on "Basic Office" (Word, Excel, Internet e E-mailing) organized by: "E-Work", Pescara in cooperation with "Ok Work", Milano.
ARTISTIC SKILLS	Great passion for music (jazz, acoustic, ethnic, rock and classic), dance, theatre, readings and paintings. Free time: travels, museums. Piano and guitar classes. Artistic Gym and Jazz Dance; I am still studying in a Jazz Dance School.
DRIVING LICENCE	Driving licence cat. B

Pescara, 23-11-2007 Federica Di Berardino

[DI BERARDINO, Federica]

Andrea Licastro

18, via del Porto, 65126, Pescara, Italy

andrea.licastro@icranet.org

June 5, 1982

+39 085 68232 +39 329 4215199

Work experience

Dates: September 3rd →

Position held: System Manager

Responsibilities: web master, network administrator, maintenance, audio-video recording, support activities

Name of the employer: ICRANet

Education:

Dates: 2004-2007

Title of qualification awarded: Master degree in Computer Science Engineering

Name and type of organisation providing education: University of Bologna – Faculty of Engineering

Level in national or international qualification: 100/110

Dates: 2001-2004

Title of qualification awarded: Bachelor degree in Computer Science Engineering

Name and type of organisation providing education: University of Bologna – Faculty of Engineering

Level in national or international qualification: 106/110

Dates: 1996-2001

Name and type of organisation providing education: Liceo Scientifico “G. Galilei”, PNI experimental class.

Level in national or international qualification: 90/100

Personal skills and competences

Mother tongue: Italian

Other language: English

Computer skills and competences:

OS: Microsoft 9x/2k/Xp, 2000 Server, Mac OS X, Linux; shell DOS e Unix.

Databases: MySQL, DB2, FileMaker. knowledge of data mining techniques.

Programming languages: Java, UML very good; C, C#, Prolog, Pascal good; Assembler 80x86. Knowledge of planning for programming languages and artificial intelligence.

Web technologies: Html, CSS, JSP, JavaScript, XML, XSL very good; Web Services, Flash, PHP.

Networks: very good knowledge of protocols (IP, TCP, UDP, DNS, HTTP, FTP, SMTP), Ehernet and 802.11x, and security solutions (cryptography, SSH, VPN, firewalling).

OfficeTM, OpenOffice, iWork; browser Web and e-mail. Hardware maintenance.

GABRIELLA RAGNI

Born in Atri (Italy) Aug., 13th 1976 – Unmarried
v. Chieti, 5 – 65121 Pescara – Italy
Home: + 39-085-9354.751 – Mobile: +39-333-688.4082 – gabriella.ragni@virgilio.it

EXPERIENCES:

February '07-present
ICRANET- INTERNATIONAL CENTER FOR RELATIVISTIC ASTROPHYSICS NETWORK Pescara, Italy
Responsible for the Documentation Office, organisation of scientific conferences, external relations with the press, translations english/french/italian of scientific material.

October '06 December '06
REGIONAL COUNCIL –ABRUZZO REGION- CIVIL DEFENCE DEPARTMENT L'Aquila, Italy
Interpreter within the "S.I.S.M.A. Project"- Integrated System for Security Management Action-
Translation English/ Italian- Italian/ English concerning seismic risk, cultural heritage safeguard, urban system, vulnerability factors, hazard factors, emergency planning

November '06 June '06
STOA CENTRO STUDI- PRIVATE LANGUAGE SCHOOL Montesilvano, Italy
Teacher
English and French language

June '06 October '06
A.T. e .S. (ENVIRONMENT, TERRITORY AND SOCIETY) Chieti, Italy
Social Assistant and Educator

July '05 October '05
ABRUZZO PROMOZIONE TURISMO(APTR) TOURIST BOARD OF THE ABRUZZO REGION Pescara, Italy
Executive Secretary

September '03 July '04
UNIVERSITÀ DEGLI STUDI "G. D'ANNUNZIO" FACOLTÀ DI SCIENZE SOCIALI - CHIETI-PESCARA
Cultore della materia dell'insegnamento di "Lingua Inglese" English language Expert Chieti,Italy

March '03 May '03
ACADEMY & FINANCE S.A. Geneva, Switzerland
Project Manager
Responsible for the organization of conferences on money laundering, drug trafficking and illicit international trade activities. Studied issues on criminal organizations and connection between trans-national criminal organizations, national security and globalization of financial markets. Examined drug traffic, illicit commerce and its influence on terrorism and arms proliferation

January '01 March '01
UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT (UNCTAD) Geneva, Switzerland
Intern
Worked on the creation of a web site to promote the Mediterranean 2000 Program concerned with small and medium enterprises in the Mediterranean and Horn of Africa
Devised plans to enable the Program-assisted-countries to better understand the work UNCTAD does. Researcher on the implementation of quality standards in small and medium enterprises in the Italian north-east and the possibility of applying this model in developing countries

EDUCATION:

October '01 – October '03
INSTITUT UNIVERSITAIRE DE HAUTES ETUDES INTERNATIONALES (IUHEI) Geneva, Switzerland
Diplôme d'études approfondies (D.E.A.) – Master in International Relations
Emphasis on History and Political Studies

December '00
UNIVERSITÀ DEGLI STUDI DI TRIESTE Gorizia, Italy
Graduated in International and Diplomatic Studies
Emphasis on International Relations, History and International Law
Final mark: 110/110 cum laude

October '99 – January '00
ERASMUS UNIVERSITEIT Rotterdam, Netherlands
Erasmus Student
Courses include: Public International Law Advanced, Economics of Public Law

July '95
LICEO LINGUISTICO "GUGLIELMO MARCONI" Pescara, Italy
Emphasis on foreign languages
Final mark: 60/60

June '94 – September '94
HARVARD UNIVERSITY Cambridge, Massachusetts, United States
Faculty of Arts and Sciences, Division of Continuing Education
Summer School
Courses include: Introduction to linguistics, Introduction to acting

July'91
HOVE SCHOOL OF ENGLISH (HSE) Hove, East Sussex, England
Summer School
Courses include: General English + one hour conversation classes per day

LANGUAGES:

Mother tongue : **Italian** Fluent : **English, French, Spanish**. Good : **German**

COMPUTER SKILLS:

European Computer Driving License (ECDL)
Microsoft Office (Word processing, Spreadsheets, Database, Power Point, Managing files)
Internet Explorer + Outlook Express

PUBLICATIONS:

March '01
«**Implementing quality standards in the Small and Medium enterprises of the Italian north-east**»
Published by UNCTAD Geneva, Switzerland

September '99
«**Verso l'Europa Politica**» International Sociology Program n° 98-5
Published by the International Sociology Institute (ISIG) Gorizia, Italy

SPORTS:

'82-'93 **"Libertas CARI Pescara"** Swimming Team Pescara, Italy

'01-'02 **"G. D'Annunzio Rari Nantes Pescara"** Master Swimming Team Pescara, Italy

'06-present **"Simply Sport"** Master Swimming Team Pescara, Italy

'05-present **"Pin-Up Agility Club"** Dog agility (obstacle race against the clock!) Pescara, Italy