

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.

Work With Students

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.

IV 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.