

Filippi Simonetta

Position: Associate Professor (Fis/02) in Theoretical Physics.
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Curriculum Vitae

Education

Laurea Diploma in Physics, University of Rome "La Sapienza," (with highest honors), 1982.
Thesis title: "Formation of self-gravitating systems in Relativistic Cosmology and in Newtonian approximation."

Professional Experiences

- [2010] Visiting Professor, Biosciences Department, Cornell University, USA
- [2003-today] Associate Professor in Theoretical Physics, University Campus Bio-Medico of Rome.
- [1999] Researcher in Physics University Campus Bio-Medico of Rome, Italy.
- [1997] Reviewer "Kluwer academic publishers," (ed. Prof. J. E. Dyson.).
- [1996-99] Expert on Theoretical Physics Department of Physics, University of Rome "La Sapienza,".
- [1993-99] Assistant Professor of Physics University Campus Biomedico of Rome, Italy.
- [1993-96] ASI grant.
- [1993-96] Research Leader ICRA Project on "Structure and Morphology of galaxies," (CEE grant),.
- [1990-93] Research Assistant Department of Physics, University "La Sapienza," Rome.
- [1990] Visiting Researcher Harvard-Smithsonian Center for Astrophysics (Harvard University-Boston), University of Chicago
- [1989-97] Researcher ICRA,
- [1987-90] ICRA: International Center for Relativistic Astrophysics, Rome.
- [1985-86] High-school professor, Liceo Classico, Naples.
- [1984-86] Research Fellow Astronomical Observatory of Capodimonte (Naples),
- [1983-84] Assistant Professor of Physics Department of Mathematics, Catholic University, Brescia, Italy,

I. Scientific activities

- Physics of self-gravitating systems
- Effective geometries in fluids
- Nonlinear dynamics and complex systems in Biology
- Relativistic Astrophysics and Cosmology

Teaching Duties

- 1) Engineering Faculty (University Campus Biomedico)
 - Reader: Dynamics of Complex Systems
 - Reader: Mechanics and Thermodynamics
- 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.

Participation to Conferences

- 5th International Workshop on Cardiac Mechano-Electric Feedback and Arrhythmias, Oxford (GREAT BRITAIN)
- Joint SIAM/RSME-SCM-SEMA Meeting Emerging Topics in Dynamical Systems and Partial Differential Equations DSPDEs'10 May 31st, – June 4th, 2010, Barcelona, Spain 2010
- 4th International Symposium on Modelling of Physiological Flows, Chia Laguna (ITALY) 2010
- 12th Marcel Grossman Meeting, Paris 2009.
- Cardiac MEF and Arrhythmias Conference, Oxford, UK 2007.
- 10th Italian-Korean Symposium on Relativistic Astrophysics in Pescara, Italy, 2007.
- Cardiac Dynamics Kavli Institute for Theoretical Physics, University of Santa Barbara, California, 2006.
- Bego scientific Rencontres, Nice, France 2006.
- COMSOL Users Conference, Milan, Italy 2006.
- COMSOL Italian Multiphysics Meeting, Milan Italy, 2005.
- Russian-Italian Lifshitz-Zeldovich Meeting on Relativistic Astrophysics, Pescara, Italy, 2005.
- Vip guest at Stanford University for the Gravity Probe B launch mission.2004.
- 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.
- "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.
- 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.
- "Italian - Korean meeting on relativistic astrophysics," (Italy), invited talk: "The n-th order Virial Theory," 1995.
- "Seventh Marcel Grossmann Meeting," Stanford University (USA), communication: "The Landau damping in semi-degenerate gravitating systems," 1994.
- International Meeting on Structures in Early-Type Galaxies, Accademia Nazionale dei Lincei (Rome, Italy) , communication: "Landau damping in galactic systems," 1992.
- International Meeting on Dynamics of Elliptical Galaxies, Accademia Nazionale dei Lincei (Rome, Italy) , communication: "Relations between observed quantities and parameters of galactic models," 1991.
- "Sixth Marcel Grossmann Meeting," (Kyoto, Japan) communication on "Dynamical Equilibrium and Stability of Rotating Masses," 1991.
- International Meeting on Dynamics of Galaxies, Accademia Nazionale dei Lincei (Rome, Italy) , communication: "Nonlinear Velocities in Ellipsoidal Figures of equilibrium," 1990.
- 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 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

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

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

Work With Postdocs

The main collaboration of Prof. Filippi with ICRANET postdocs has been with Dr Andrea Geralico, in relation with perturbation theory in effective geometries occurring in uniformly rotating self gravitating classical fluids.

II. Service activities

Prof. Filippi has a longstanding collaboration with other ICRANET scientists. In particular in collaboration with Dr Donato Bini, Dr Christian Cherubini and Prof. Remo Ruffini she has written plenty articles in various areas of Astrophysics, hydrodynamics and complex systems in Nature.

2010 List of Publications

A. PUMIR S. SINHA, S. SRIDHAR, M. ARGENTINA, M. HORNING, S. FILIPPI, C. CHERUBINI, S. LUTHER and V. KRINSKY "Wave-train-induced termination of weakly anchored vortices in excitable media". *Phys Rev E*, 81; 010901 (2010).

A. GIZZI, C. CHERUBINI, S. MIGLIORI, R. ALLONI, R. PORTUESI and S. FILIPPI. "On the electrical intestine turbulence induced by temperature changes". *Phys. Biol.*, 7; 16011-1(2010).

C. CHERUBINI and S. FILIPPI " Boundary Conditions for Scattering Problems from Acoustic Black Holes". *Journal of Korean Physical Society*, 56; 1668 (2010)

D. BINI, C. CHERUBINI, S. FILIPPI, A GIZZI and P.E. RICCI, "On spiral waves arising in natural systems". *Comm. Comput. Phys.*, 8; 610 (2010).

D. BINI, C. CHERUBINI, S. FILIPPI, and A. GERALICO "Effective geometry of the $n=1$ uniformly rotating self-gravitating polytrope" , *Phys. Rev. D*, 82; 044005 (2010).

Chapters on Volumes:

Cherubini C., Filippi S, Nardinocchi P and Teresi L. "Electromechanical Modelling of Cardiac Tissue". in: Kamkin A. and Kiseleva (Editors). *Mechanosensitivity of the Heart*. vol. 3, p. 421-449, BERLIN: Springer, (2010)