

Viviana Fafone

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Graduated in Physics cum laude in 1991. Research scientist of the INFN (National Institute of Nuclear Physics) at the Frascati National Laboratories from 1994 to 2005. Associate Professor of Astronomy and Astrophysics at the University of Rome Tor Vergata since 2005.

Charges

- Coordinator of the Nautilus experiment at the INFN National Laboratories in Frascati since 1997
- Team leader of the Virgo Tor Vergata group since 2006
- Member of the Virgo Steering Committee since 2006
- Local coordinator at the University of Tor Vergata of the PRIN project “*Study of experimental issues for cryogenic underground gravitational wave interferometers*” funded by the Ministry of University and Research (MIUR) (2007-2011)
- Member of the Subsystem Managers Board for the Advanced Virgo (AdV) detector and responsible for the development of the AdV adaptive optical system since 2008
- National scientific coordinator for the INFN of the design study FP7-ET: Einstein gravitational wave Telescope and member of the ET Governing Council (2008-2011)
- Academic Advisor for the Master Program “Astromundus” funded by the European Union since 2011
- Member of the Tor Vergata University Academic Board for Students’ Guidance and Outreach Activities since 2013

Awards

- 1993: Prize for scientific activity, dedicated to young physicists, awarded by the Italian Physical Society
- 2002: Prize awarded by the Italian Society for General Relativity and Gravitational Physics “for the contribution given to the field of Relativity and Gravitation on the experiments with resonant detectors and to the studies, both experimental and theoretical, on new generation gravitational waves detectors”. Selection Committee: C. Bachas (Ecole Normale Supérieure, Paris), M. Cerdonio (Università di Padova), G. Ellis (Cape Town, South Africa), B. Schutz (Albert Einstein Institute, Potsdam), G. Veneziano (CERN)

Scientific activity

Research fields: Gravitational waves; Astrophysics; Astroparticle

Main focus of the research activity is on gravitational waves physics, sources, data analysis and detectors. Major involvement in the cryogenic resonant gravitational wave detectors Explorer (CERN) and Nautilus (INFN Frascati Labs) and in the large European laser interferometer gravitational-wave experiment Virgo at the European Gravitational Observatory in Pisa. Interest in the field of cosmic rays and neutrinos.

Collaboration with research groups at the University of Leiden (The Netherlands), California Institute of Technology (USA), University of Adelaide (Australia).

Invited talks in many international conferences.

Peer-reviewing

Referee for *Classical and Quantum Gravity*, *Nuclear Instruments and Methods in Physics Research*.

Teaching activity

- At the Physics Department of the University of Rome "Tor Vergata": General Physics; Gravitational Waves
- Lectures on General Relativity and Gravitational Waves for PhD students in Physics and Astronomy
- Tutor for many master and PhD theses
- Active in outreach and educational activities addressed to students and teachers of secondary school

Publications

Author of more than 130 publications on refereed international journals. Listed in the following, 10 selected papers among those published in the years 2010-2013.

- [1] *Analysis of 3 years of data from the gravitational wave detectors EXPLORER and NAUTILUS*, P. Astone, M. Bassan, E. Coccia, S. D'Antonio, V. Fafone, G. Giordano, A. Marini, Y. Minenkov, I. Modena, A. Moleti, G.V. Pallottino, G. Pizzella, A. Rocchi, F. Ronga, R. Terenzi, M. Visco, Phys. Rev. D 87 (8), 082002 (2013) DOI:10.1103/PhysRevD.87.082002
- [2] *Central heating radius of curvature correction (CHRoCC) for use in large scale gravitational wave interferometers*, Virgo Collaboration, Class. Quantum. Grav. 30, 055017 (2013) DOI: 10.1088/0264-9381/30/5/055017
- [3] *Scientific objectives of Einstein Telescope*. Sathyaprakash B, et al. (ET Science Team), Class.Quant.Grav. 29 (2012) DOI: 10.1088/0264-9381/29/12/124013
- [4] *Swift follow-up observations of candidate gravitational-wave transient events*. LIGO Scientific Collaboration and Virgo Collaboration, Astrophys. J. S. 203, 28 (2012), DOI: 10.1088/0067-0049/203/2/28
- [5] *Thermal effects and their compensation in advanced Virgo*, Rocchi A, Coccia E, Fafone V, Malvezzi V, Minenkov Y, Sperandio L, J.Phys.Conf.Ser. 363 (2012) 012016, DOI: 10.1088/1742-6596/363/1/012016
- [6] *Sensitivity Studies for Third-Generation Gravitational Wave Observatories* S. Hilde et al. (ET Science Team), Class.Quant.Grav. 28:094013 (2011)
- [7] *Search for gravitational waves from binary black hole inspiral, merger and ringdown* LIGO Scientific and Virgo Collaborations, Phys.Rev. D83 (2011) 122005, Erratum-ibid. D86 (2012) 069903, DOI: 10.1103/PhysRevD.86.069903, 10.1103/PhysRevD.83.122005, 10.1103/PhysRevD.85.089904
- [8] *Predictions for the rates of compact binary coalescences observable by ground-based gravitational-wave detectors*. LIGO Scientific Collaboration and Virgo Collaboration, Class.Quant.Grav. 27, 173001 (2010)
- [9] *The Einstein Telescope: A third-generation gravitational wave observatory*. M. Punturo et al. (ET Science Team), Class.Quant.Grav. 27:194002 (2010)
- [10] *Search for gravitational waves from compact binary coalescence in LIGO and Virgo data from S5 and VSR1*, LIGO Scientific Collaboration and Virgo Collaboration, Phys. Rev. D 82:102001 (2010)