

Ornella Juliana Piccinni

Curriculum Vitae

Personal information

Full name Ornella Juliana Piccinni

Work experience

- 01/11/2014–
Now **PhD student - Astronomy, Astrophysics and Space Science**, *Dipartimento di Fisica, Università degli Studi di Roma "La Sapienza"*, Rome (Italy), Working with the Virgo Rome group in the field of Data Analysis for Continuous Gravitational Wave Searches. Thesis title: "An enhanced sensitivity procedure for continuous gravitational-wave detection". Supervisor Prof. Sergio Frasca.
Collaboration with the Virgo detector characterization group for data quality studies, responsible for the monitoring tool NoEMi in LIGO and Virgo detector group
- 01/03/2014–
22/09/2014 **Visitor - Erasmus Master student**, *Max Planck Institute for Gravitational Physics (Albert Einstein Institute) - Leibniz Universität Hannover*, Hannover (Germany), Collaboration with the group of Gravitational Wave Searches and Data Analysis, Astrophysical and Cosmological Relativity Division.
Working on my Master thesis project

Education

- October 2012
– 31/10/2014 **Master's degree in Physics - Grade : 110 cum laude**, *Università degli Studi di Roma "La Sapienza"*, Rome (Italy), Title of the thesis: 'Mitigation of transient disturbances in wide parameter space searches for continuous gravitational wave signals'. Supervisors Prof. Fulvio Ricci and Dr. Maria Alessandra Papa.
Topic: Data Analysis of the LIGO/Virgo data, post processing, cleaning of the data
- October 2009
– 08/11/2012 **Bachelor's degree in Physics - Grade : 110 cum laude**, *Università degli Studi di Roma "La Sapienza"*, Rome (Italy), Title of the thesis: 'Studio di Equazioni iperboliche quasi-lineari'. Supervisor Prof. Benedetto Tirozzi.
Topic: The purpose of the thesis is to study the model of hyperbolic equations in a quasi-linear regime

Experience

Teaching & Outreach

- 2016 **Tutor in Maths courses (OFA)**, remedial course for students of the Science Faculty of the University of Rome "La Sapienza".
- Jan. 2016 –
Now **Active member of "The Science Zone"**, Scientific outreach project and cultural association for the diffusion of science in Schools.

Vocational

2013–2014 **Part-time collaboration fellowship with the Physics Department of the University of Rome "La Sapienza"**, assistant to laboratory classes (*Classical Mechanics, Thermodynamics, Optics, Electromagnetism*) in "Laboratori Bruno Pontecorvo".

2011–2013 **Part-time collaboration fellowship with the Physics Department of the University of Rome "La Sapienza"**, librarian in physics department.

PhD schools

Jul. 2017 **1st Institute of Space Sciences Summer School:** "Neutron Stars And Their Environments", poster presentation at UAB Bellaterra (Spain)

Jun. 2017 **1st Italian Astrostatistics School** PhD School at the Brera observatory (INAF), Milan

Jun. 2017 **School on Gravitational Waves for Cosmology and Astrophysics** PhD School at "Centro de Ciencias de Benasque Pedro Pascual" (Spain)

Oct. 2016 **Fifth GraWIToN School** PhD School at "La Sapienza" (data analysis)

Nov. 2015 **Second GraWIToN School** PhD School (data analysis) at GSSI (L'Aquila)

Apr. 2015 **First GraWIToN School** PhD School at EGO - European Gravitational Observatory in Cascina(PI)

Meetings, conferences and workshops

Aug. 2017 **LSC-Virgo collaboration meeting** participant at CERN - Geneva (Switzerland), speaker

Jun. 2017 **GWPAW 2017 Annecy (France)**, poster presentation

Mar. 2017 **LSC-Virgo collaboration meeting** participant in Pasadena (USA), speaker

Oct. 2016 **SciNeGHE** Workshop on "Science with the New generation of High Energy Gamma-ray Experiments", poster presentation in Pisa

Sept. 2016 **PhD Workshop in Astronomy, Astrophysics and Space Science** participant in Rome (Tor Vergata), speaker

Aug. 2016 **LSC-Virgo collaboration meeting** participant in Glasgow (Scotland), speaker

Mar. 2015 **LSC-Virgo collaboration meeting** remotely speaker in Pasadena (USA)

Aug. 2015 **LSC-Virgo collaboration meeting** participant in Budapest (Hungary)

Jul. 2015 **Marcel Grossmann meeting XIV** Workshop participant in Rome

Jun. 2015 **GWPAW 2015 Osaka (Japan)** poster presentation on the behalf of the Virgo Rome group

Aug 2014 **LSC-Virgo collaboration meeting** remotely speaker in Stanford (USA)

Miscellaneous

Nov. 2014 – **Affiliation** INFN, sezione di Roma
Now

Mar. – Sept. **Affiliation** LSC - GEO - Albert-Einstein-Institut, Golm
2014

Awards

2017 Premio Princesa de Asturias de Investigación Científica y Técnica (collaboration prize)

2017 Bruno Rossi prize (collaboration prize)

2017 Einstein Medal (collaboration prize)

2016 2016 Gruber Cosmology Prize (collaboration prize)

2016 Sapienza research scholarship: "Progetti per Avvio alla Ricerca"

2016 Special Breakthrough Prize in Fundamental Physics (collaboration prize)

2014 PhD fellowship

2014 Erasmus fellowship

2012 Outstanding Dissertation Award (Laziodisu)
2009-2014 Laziodisu scholarship

Computer skills

Programming languages Matlab, C/C++, Python, HTCondor, MYSQL

Programs L^AT_EX, OpenOffice, Microsoft Office, Origin, R

Operating systems Linux, Windows, Mac

Languages

Italian Mother tongue

Spanish Mother tongue

English Advanced

German Beginner *Intensivsprachkurs Deutsch Niveau A2 (Fachsprachenzentrum der Leibniz Universität Hannover)*

First Certificate in English (FCE). B2 Level

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Publications

- [1] S. Mastrogiovanni, P. Astone, S. D'Antonio, S. Frasca, G. Intini, P. Leaci, A. Miller, C. Palomba, O. J. Piccinni, and A. Singhal. An improved algorithm for narrow-band searches of continuous gravitational waves. *Classical and Quantum Gravity*, 34(13):135007, July 2017.
- [2] P. Leaci, P. Astone, S. D'Antonio, S. Frasca, C. Palomba, O. Piccinni, and S. Mastrogiovanni. Novel directed search strategy to detect continuous gravitational waves from neutron stars in low- and high-eccentricity binary systems. *Phys. Rev. D*, 95(12):122001, June 2017.
- [3] S. Walsh, M. Pitkin, M. Oliver, S. D'Antonio, V. Dergachev, A. Królak, P. Astone, M. Bejger, M. Di Giovanni, O. Dorosh, S. Frasca, P. Leaci, S. Mastrogiovanni, A. Miller, C. Palomba, M. A. Papa, O. J. Piccinni, K. Riles, O. Sauter, and A. M. Sintes. Comparison of methods for the detection of gravitational waves from unknown neutron stars. *Phys. Rev. D*, 94(12):124010, December 2016.
- [4] LIGO Scientific Collaboration and Virgo Collaboration. Search for gravitational waves from Scorpius X-1 in the first Advanced LIGO observing run with a hidden Markov model. *Phys. Rev. D*, 95(12):122003, June 2017.
- [5] LIGO Scientific Collaboration and Virgo Collaboration. Upper Limits on the Stochastic Gravitational-Wave Background from Advanced LIGO's First Observing Run. *Physical Review Letters*, 118(12):121101, March 2017.
- [6] LIGO Scientific Collaboration and Virgo Collaboration. Directional Limits on Persistent Gravitational Waves from Advanced LIGO's First Observing Run. *Physical Review Letters*, 118(12):121102, March 2017.
- [7] LIGO Scientific Collaboration and Virgo Collaboration. GW170104: Observation of a 50-Solar-Mass Binary Black Hole Coalescence at Redshift 0.2. *Physical Review Letters*, 118(22):221101, June 2017.
- [8] LIGO Scientific Collaboration and Virgo Collaboration. Characterization of transient noise in Advanced LIGO relevant to gravitational wave signal GW150914. *Classical and Quantum Gravity*, 33(13):134001, July 2016.
- [9] LIGO Scientific Collaboration and Virgo Collaboration. All-sky Search for Periodic Gravitational Waves in the O1 LIGO Data. *ArXiv e-prints*, July 2017.
- [10] The LIGO Scientific Collaboration and the Virgo Collaboration. First low-frequency Einstein@Home all-sky search for continuous gravitational waves in Advanced LIGO data. *ArXiv e-prints*, July 2017.
- [11] The LIGO Scientific Collaboration and the Virgo Collaboration. Upper Limits on Gravitational Waves from Scorpius X-1 from a Model-Based Cross-Correlation Search in Advanced LIGO Data. *ArXiv e-prints*, June 2017.
- [12] LIGO Scientific Collaboration and Virgo Collaboration. Effects of waveform model systematics on the interpretation of GW150914. *Classical and Quantum Gravity*, 34(10):104002, May 2017.
- [13] LIGO Scientific Collaboration and Virgo Collaboration. The basic physics of the binary black hole merger GW150914. *Annalen der Physik*, 529:1600209, January 2017.
- [14] LIGO Scientific Collaboration and Virgo Collaboration. Prospects for Observing and Localizing Gravitational-Wave Transients with Advanced LIGO and Advanced Virgo. *Living Reviews in Relativity*, 19:1, February 2016.

- [15] LIGO Scientific Collaboration and Virgo Collaboration. All-sky search for short gravitational-wave bursts in the first Advanced LIGO run. *Phys. Rev. D*, 95(4):042003, February 2017.
- [16] LIGO Scientific Collaboration and Virgo Collaboration. Search for continuous gravitational waves from neutron stars in globular cluster NGC 6544. *Phys. Rev. D*, 95(8):082005, April 2017.
- [17] LIGO Scientific Collaboration and Virgo Collaboration. Directly comparing GW150914 with numerical solutions of Einstein's equations for binary black hole coalescence. *Phys. Rev. D*, 94(6):064035, September 2016.
- [18] LIGO Scientific Collaboration and Virgo Collaboration. Observing gravitational-wave transient GW150914 with minimal assumptions. *Phys. Rev. D*, 93(12):122004, June 2016.
- [19] LIGO Scientific Collaboration and Virgo Collaboration. GW150914: First results from the search for binary black hole coalescence with Advanced LIGO. *Phys. Rev. D*, 93(12):122003, June 2016.
- [20] LIGO Scientific Collaboration and Virgo Collaboration. Comprehensive all-sky search for periodic gravitational waves in the sixth science run LIGO data. *Phys. Rev. D*, 94(4):042002, August 2016.
- [21] LIGO Scientific Collaboration and Virgo Collaboration, IceCube and Antares Collaborations. High-energy neutrino follow-up search of gravitational wave event GW150914 with ANTARES and IceCube. *Phys. Rev. D*, 93(12):122010, June 2016.
- [22] LIGO Scientific Collaboration and Virgo Collaboration. Search for transient gravitational waves in coincidence with short-duration radio transients during 2007-2013. *Phys. Rev. D*, 93(12):122008, June 2016.
- [23] LIGO Scientific Collaboration and Virgo Collaboration. First low frequency all-sky search for continuous gravitational wave signals. *Phys. Rev. D*, 93(4):042007, February 2016.
- [24] LIGO Scientific Collaboration and Virgo Collaboration. All-sky search for long-duration gravitational wave transients with initial LIGO. *Phys. Rev. D*, 93(4):042005, February 2016.
- [25] LIGO Scientific Collaboration and Virgo Collaboration. Search of the Orion spur for continuous gravitational waves using a loosely coherent algorithm on data from LIGO interferometers. *Phys. Rev. D*, 93(4):042006, February 2016.
- [26] LIGO Scientific Collaboration and Virgo Collaboration. Properties of the Binary Black Hole Merger GW150914. *Physical Review Letters*, 116(24):241102, June 2016.
- [27] LIGO Scientific Collaboration and Virgo Collaboration. Tests of General Relativity with GW150914. *Physical Review Letters*, 116(22):221101, June 2016.
- [28] LIGO Scientific Collaboration and Virgo Collaboration. GW150914: Implications for the Stochastic Gravitational-Wave Background from Binary Black Holes. *Physical Review Letters*, 116(13):131102, April 2016.
- [29] LIGO Scientific Collaboration and Virgo Collaboration. GW150914: The Advanced LIGO Detectors in the Era of First Discoveries. *Physical Review Letters*, 116(13):131103, April 2016.
- [30] LIGO Scientific Collaboration and Virgo Collaboration. First targeted search for gravitational-wave bursts from core-collapse supernovae in data of first-generation laser interferometer detectors. *Phys. Rev. D*, 94(10):102001, November 2016.



- [31] LIGO Scientific Collaboration and Virgo Collaboration. Results of the deepest all-sky survey for continuous gravitational waves on LIGO S6 data running on the Einstein@Home volunteer distributed computing project. *Phys. Rev. D*, 94(10):102002, November 2016.
- [32] LIGO Scientific Collaboration and Virgo Collaboration. Improved Analysis of GW150914 Using a Fully Spin-Precessing Waveform Model. *Physical Review X*, 6(4):041014, October 2016.
- [33] LIGO Scientific Collaboration and Virgo Collaboration. The Rate of Binary Black Hole Mergers Inferred from Advanced LIGO Observations Surrounding GW150914. *The Astrophys. J. Lett.*, 833:L1, December 2016.
- [34] LIGO Scientific Collaboration and Virgo Collaboration. Astrophysical Implications of the Binary Black-hole Merger GW150914. *The Astrophys. J. Lett.*, 818:L22, February 2016.
- [35] LIGO Scientific Collaboration and Virgo Collaboration. Search for intermediate mass black hole binaries in the first observing run of Advanced LIGO. *Phys. Rev. D*, 96(2):022001, July 2017.
- [36] LIGO Scientific Collaboration and Virgo Collaboration, IceCube and Antares Collaborations. Search for high-energy neutrinos from gravitational wave event GW151226 and candidate LVT151012 with ANTARES and IceCube. *Phys. Rev. D*, 96(2):022005, July 2017.
- [37] LIGO Scientific Collaboration and Virgo Collaboration. Search for Gravitational Waves Associated with Gamma-Ray Bursts during the First Advanced LIGO Observing Run and Implications for the Origin of GRB 150906B. *Astrophys. J.*, 841:89, June 2017.
- [38] LIGO Scientific Collaboration and Virgo Collaboration. Binary Black Hole Mergers in the First Advanced LIGO Observing Run. *Physical Review X*, 6(4):041015, October 2016.
- [39] LIGO Scientific Collaboration and Virgo Collaboration. Supplement: "The Rate of Binary Black Hole Mergers Inferred from Advanced LIGO Observations Surrounding GW150914" (2016, ApJL, 833, L1). *The Astrophys. J. Suppl.*, 227:14, December 2016.
- [40] LIGO Scientific Collaboration and Virgo Collaboration. Observation of Gravitational Waves from a Binary Black Hole Merger. *Physical Review Letters*, 116(6):061102, February 2016.
- [41] LIGO Scientific Collaboration and Virgo Collaboration. GW151226: Observation of Gravitational Waves from a 22-Solar-Mass Binary Black Hole Coalescence. *Physical Review Letters*, 116(24):241103, June 2016.
- [42] LIGO Scientific Collaboration and Virgo Collaboration. Upper Limits on the Rates of Binary Neutron Star and Neutron Star-Black Hole Mergers from Advanced LIGO's First Observing Run. *The Astrophys. J. Lett.*, 832:L21, December 2016.
- [43] LIGO Scientific Collaboration and Virgo Collaboration. First Search for Gravitational Waves from Known Pulsars with Advanced LIGO. *Astrophys. J.*, 839:12, April 2017.
- [44] LIGO Scientific Collaboration and Virgo Collaboration, ASKAP Collaboration, BOOTES Collaboration, et al. . Supplement: "Localization and Broadband Follow-up of the Gravitational-wave Transient GW150914" (2016, ApJL, 826, L13). *The Astrophys. J. Suppl.*, 225:8, July 2016.
- [45] LIGO Scientific Collaboration and Virgo Collaboration. Localization and Broadband Follow-up of the Gravitational-wave Transient GW150914. *The Astrophys. J. Lett.*, 826:L13, July 2016.

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