

GIOVANNI LOSURDO

CURRICULUM VITAE



PERSONAL DATA

INFN - Pisa Division – Largo Pontecorvo, 3 – 56127 - Pisa

Born: Bari (Italy), November 1st, 1968

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CURRENT POSITION: Research Director - INFN, Pisa

CURRENT SCIENTIFIC ROLE: Spokesperson – Virgo Collaboration

EDUCATION HIGHLIGHTS

1999 Phd in physics, Scuola Normale Superiore, Pisa, cum laude

1993 Laurea in fisica (Master degree in physics), University of Pisa, cum laude

CAREER HIGHLIGHTS

Spokesperson of the Virgo Collaboration

Project Leader of Advanced Virgo (8-year project leading to groundbreaking physics results)

AWARDS AND HONORS

2019- Accademia Nazionale dei Lincei – [Socio Corrispondente](#)

2018 Premio L. Tartufari per la Fisica e la chimica – Accademia dei Lincei

2017 [Commendatore](#) dell'Ordine al Merito della Repubblica Italiana – *Upon initiative of the President of the Republic*

2016 [Premio internazionale Galileo Galilei](#) per la scienza

Shared with the LIGO and Virgo Collaborations:

2017 Einstein Medal

2016 Special Breakthrough Prize in fundamental physics

2016 Gruber Cosmology Prize

RESEARCH HIGHLIGHTS

I am involved since 1992 in the VIRGO experiment (interferometric detection of gravitational waves). During the years I have given relevant contribution and covered leading roles on many different aspects of the experiment: from early R&D to design, from construction to commissioning and management.

R&D – My research activity until 2000 has been mostly dedicated to the design and the realization of the *superattenuator*, the isolation system realized to isolate the Virgo mirrors from external vibrations and control their position, which has made Virgo the most sensitive among the 1st generation GW detectors in the “low frequency range”. During my PhD thesis I have designed and realized the *Inverted Pendulum (IP)* pre-isolator for the superattenuator (along with its active control strategy). The IP has been also adopted by the Kagra experiment and will also be used by the Einstein Telescope

Commissioning - In the period 2000-2006 I have been deeply committed with the commissioning of the Virgo detector and with the investigation on the noise sources. I have designed and realized the strategy of *Hierarchical control* for the mirrors.

Advanced Virgo design - Since 2004 I have been involved in the design of a “2nd generation Virgo”: Advanced Virgo (AdV). From July 2006 to April 2009 I have been the Advanced Virgo Coordinator, with the mandate of coordinating all the R&D activities for AdV and the writing of the AdV Conceptual Design and the relevant project documents.

Advanced Virgo Leadership - In April 2009 I have been appointed Advanced Virgo Project Leader by the funding agencies (INFN and CNRS). As such, I have coordinated more than 200 scientists from the six countries and managed an investment budget of about 24 MEuros. I have covered this role for the entire duration of the project, which formally ended on Aug 1st, 2017, when Advanced Virgo started taking data. A few days after (Aug 14th) Advanced Virgo made its first detection (GW170814) and (Aug 17th) contributed to the historical detection of GW170817. The success of Advanced Virgo, which has made Virgo a pillar of the GW network and made possible the historical start of multi-messenger astronomy, is my major scientific achievement.

Virgo_nEXT – As spokesperson of the Virgo Collaboration I have started the effort to plan for a new, substantial upgrade of Virgo aimed to continue an ambitious GW science program in the 2030s bridging the gap between the 2nd existing detectors and the “3rd generation” (Einstein Telescope and Cosmic Explorer): Virgo_nEXT. Beside the science it promises, it will be invaluable to bring to maturity and test crucial technologies for the Einstein Telescope.

Einstein Telescope - I am involved since the early phases in the preparation of the 3rd generation detectors. I have been member of the Einstein Telescope (ET) science team, which prepared the design study and member of the team writing the ET proposal for the ESFRI application.

Geophysics, applications of GW technologies - I have been co-PI of PEGASEWS, a multi-disciplinary project aiming to use technologies developed in the GW field to realize an instrument capable of measuring variations of the local gravity field associated to geophysical events such as earthquakes. The PEGASEWS project was submitted for an ERC Synergy Grant 2019 call and was ranked “A”, though no funded.

PUBLICATIONS

366 papers, 56723 citations, h-index: 85 (data from Scopus, as of Jan 27th 2023)

Complete publication list [here](#).

AFFILIATIONS

2018 – Dirigente di Ricerca INFN - Pisa

2016 - 2018 Primo Ricercatore INFN - Pisa

2009 - 2016 Primo Ricercatore INFN – Firenze

2009 - 2015 European Gravitational Observatory – Collaboration contract as Advanced Virgo Project Leader

2004 - 2008 Ricercatore INFN - Firenze
2000 - 2004 Post-doc INFN - Firenze
1998 - 2000 Post-doc INFN – Pisa

SHORT-TERM VISITING

2019 “Chercheur invité de l’Université Paris Diderot”, Paris
2007 “Visiting scientist”, Massachusetts Institute of Technology
2003 University of Glasgow (Institute for General Relativity)
2002 University of Glasgow (Institute for General Relativity)
2001 University of Tokyo
2000 California Institute of Technology
1999 California Institute of Technology
1997 University of Western Australia, Perth

INTERNATIONAL ROLES, SCIENCE POLICY, DIPLOMACY

2022- [SICA](#) (Committee on International Security and Armament Control – Accademia dei Lincei) – Member
2020- Gravitational Wave International Committee ([GWIC](#)) – Member
2017 Speaker at the Press Conference announcing the first event detected by Virgo (GW170814) in the framework of the “Meeting of the G7 Science Ministers”, Torino, Sept. 27th
2016 Virgo representative at the Feb 16th Washington DC Press Conference announcing the discovery of gravitational waves
2013 Member of the Virgo Committee negotiating with CERN the status of “CERN Recognized Experiment”
2013 Member of the committee for the negotiation of the LIGO-Virgo MoU
2005-2007 Director of the International VESF school on gravitational waves
2003-2009 WG Chair in the European project ILIAS-GWA (Integrated Large Infrastructures for Astroparticle Science. funded within the Framework Programme 6)

INSTITUTIONAL OFFICES WITHIN THE VIRGO EXPERIMENT

2020- **Virgo Spokesperson**
2009-2017 **Advanced Virgo Project Leader**
2006-2009 Advanced Virgo Coordinator
2006-2008 Member of the Virgo Speakers Bureau
2003-2008 Responsible for the INFN Florence lab dedicated to R&D activities for advanced interferometers.
2005-2006 Coordinator of the work package “monolithic suspension” for the upgrade of the Virgo detector.
2004-2006 Responsible for the MSC (Mirror Suspension Control) activities in Virgo.
2004-2005 Member of the group responsible for writing the “white paper” for the Advanced Virgo detector
2003-2004 Convener of the Virgo Collaboration Meetings.
2002-2003 Coordinator of the analysis of the effect of seismic noise on Virgo

INSTITUTIONAL OFFICES WITHIN INFN

2022 Member of the committee for the recruitment of INFN researchers (national competition n. 23522/21)
2018 Member of the committee for the recruitment of INFN researchers (national competition n. 20010/18)
2014 Member of the national WG on gravitational waves in the “What Next” initiative (definition of the scientific strategy of INFN for the next decades)
2006-2009 Member of the INFN National Scientific Committee II (Astroparticle physics)
2006-2009 Coordinator of the area “Astroparticle and general physics” at INFN Firenze

PEER REVIEWS, PANELS, PROJECTS EVALUATION

Journals

Served as referee for: Physical Review Letters, Science, Physical Review Applied, Physical Review D, Classical and Quantum Gravity, Applied Optics, Review of Scientific Instruments, Nuclear Instruments and Methods

National funding agencies

Reviewer of research projects for NSF (US), STFC (UK), SNSF (CH), NFKI (Hu)

European Research Council

2019, 2021: member of the ERC Consolidator Grant Panel PE2

Panels

2014 Member of the External Review Committee of the KAGRA project
2010-2015 Member of the Advanced LIGO Program Advisory Panel (US)
2003 Member of the National Science Foundation Review Panel for Advanced LIGO

SELECTED TALKS – INTERNATIONAL CONFERENCES

2023 La Thuile, XXXVI ed. Les Rencontres de Physique de la Vallée d'Aoste, *Bridging the generation gap for GW detectors*, invited talk
2022 La Thuile, XXXV ed. Les Rencontres de Physique de la Vallée d'Aoste, *Looking out through a new window on the universe*, invited talk
2021 Moscow, 20th Lomonosov Conference, *Doing science with GW*, invited plenary talk
2019 Portsmouth, 30th Texas Symposium on relativistic astrophysics, *GW ground based detectors (current status and future opportunities)*, invited plenary talk
2019 Orsay, JENAS 2019 (1st joint ECFA-NuPECC-ApPEC Seminar), *Physics with current and future GW experiments*, invited talk
2019 Rome, 1st European Physical Society Conference on Gravitation, *GW observations on the Earth*, invited plenary talk
2018 Kolimvari (GR), 7th International Conference on New Frontiers in Physics (ICNFP2018), *GW observations: achievements and perspectives*, invited plenary talk
2018 Isola d'Elba, 14th Pisa Meeting on Advanced Detectors, *Einstein Telescope: probing the extreme through gravitational waves*, on behalf of the ET Collaboration
2018 Cascina, 9th ET Symposium, *Some considerations on the ET infrastructure – The case for a Sardinian site*
2017 Pasadena, 12th Amaldi Conference, *The second observing run*, on behalf of LIGO-Virgo, invited talk
2017 Venezia, Neutrino Telescopes 2017, *Status of Virgo*, on behalf of the Virgo Coll., invited talk
2016 LNGS (Gran Sasso), 99th Plenary ECFA meeting, *The detectors exploring the GW universe*, invited talk
2015 Silver Spring (MD), Workshop "What comes next for LIGO", *Advanced Virgo*, invited talk
2013 Warsaw, 10th Amaldi Conference, *Advanced Virgo*, on behalf of the Virgo Coll., invited talk
2011 Cardiff (UK), 9th Amaldi Conference, *Overview of 1st and 2nd generation detectors*, Invited plenary talk
2011 Pune (I), EGO-IndiGO meeting on GW, *Advanced Virgo and 2nd generation interferometers' network*, invited talk
2009 Rome (Italy), TAUP Conference, *Advanced GW detectors*, Invited plenary talk
2008 Austin (Texas), American Astronomical Society Winter meeting, *The next generation of ground based GW detectors*, invited talk.
2007 Manchester (UK), European Physical Society HEP07, *The next generations of GW interferometric detectors* (on behalf of the Virgo Coll. and LIGO Scientific Coll.)
2006 Moscow, ICHEP2006, *LIGO and Virgo: large interferometers searching for gravitational waves*.
2005 Warwick (UK), "IoP2005 – Physics: a century after Einstein", *Virgo: status and perspectives*, invited talk
2005 Munich, "1st European Astroparticle Town Meeting", *Infrastructure for 3rd generation detectors*
2003 CERN, Geneva, "Workshop on Cosmology and Particle Physics (CAPP 2003)", *Interferometer experiments*, invited keynote talk
2001 Perth, 4th Amaldi Conference, *Inertial Control of the VIRGO Superattenuator*, invited talk
2000 Rome, 9th M. Grossmann Meeting on General Relativity, *Mirror Suspension Inertial Damping*, invited talk
1999 Pasadena, 3rd Amaldi Conference, *Inertial Control of the VIRGO Superattenuator*

1997 CERN, Geneva, 2nd Amaldi Conference, *Active Control Hierarchy in VIRGO Superattenuator*

SELECTED TALKS – NATIONAL CONFERENCES

- 2018 Milano, IFAE 2018, *From GW170817 to the Einstein Telescope*, invited talk
 - 2017 Trento, 103° Congresso della Società Italiana di Fisica, *Advanced Virgo and the start of the multi-messenger astronomy*, invited talk
 - 2014 Alessandria, XXI SIGRAV Conference, *Advanced Virgo and the worldwide search for GW*, invited talk (on behalf of Virgo)
 - 2010 Roma, IFAE 2010, *Searching for gravitational waves*
 - 2010 Pisa, SIGRAV, *Searching for gravitational waves* (on behalf of LSC/Virgo)
 - 2008 Cosenza, SIGRAV, *Virgo: the challenge of opening a new window on the universe*
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SELECTED COLLOQUIA

- 2019 Almo Collegio Borromeo – Pavia
 - 2018 Università di Bologna, Joint Astronomical Colloquium
 - 2018 Scuola Normale Superiore, Colloquio della Classe di Scienze
 - 2018 Université de Genève – Colloque de Physique
 - 2017 Osservatorio di Brera – Milano
 - 2010 European Southern Observatory (Garching, Germany) – Munich Joint Astronomy Colloquium
 - 2007 Massachusetts Institute of Technology (Cambridge, MA)
 - 2006 European Southern Observatory (Garching, Germany)
 - 2005 National Astronomical Observatory of China (Beijing, China)
 - 2002 University of Glasgow (Glasgow, UK) – Institute of General Relativity
 - 2001 University of Birmingham (Birmingham, UK)
 - 2001 University of Tokyo (Tokyo, Japan)
 - 2000 European Southern Observatory (Garching, Germany)
 - 1999 California Institute of Technology (Pasadena, CA)
 - 1999 Stanford University (Palo Alto, CA)
 - 1997 University of Western Australia (Perth, WA)
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ACADEMIC TEACHING/PhD

2021, 2022: Lectures on general relativity and gravitational waves in the course of Experimental High Energy Physics (Prof L Rolandi), Scuola Normale Superiore

2000-2009: Doctoral course “Gravitational Waves”, PhD School of University of Florence

1997-2001: Assistant in the course of General Physics (Informatics/Mathematics degree, University of Pisa)

Co-mentor of the PhD thesis of Matteo Lorenzini, Dpt. of Astronomy, University of Florence (2005-2007): “Suspension thermal noise issues for advanced GW interferometric detectors”.

Referee of the PhD theses of J.S. Hennig (University of Glasgow, 2018), E. Capocasa (Univ. Paris-Diderot, 2017), F. Qi (Univ.s of Western Australia, 2015), F. Torres (Univ. of Western Australia, 2014), M. Granata (Univ. Paris-Diderot, 2010), B Lee (Univ. Of Western Australia, 2007)

ACADEMIC HABILITATION

- 2017 Italian national habilitation as Full Professor for “Experimental physics of fundamental interactions” (SC A2/01)
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ORGANIZATION OF CONFERENCES, SCHOOLS

- 2020 Probing the universe with multi-messenger astronomy, Genova, SOC member
 - 2019 EWASS2019, Lyon, SOC member
 - 2018 Marcel Grossman 15th Conference, Roma, GW7 session chair
 - 2007 VESF international school on gravitational waves, Cascina, Director
 - 2006 VESF international school on gravitational waves, Cascina, Director
 - 2005 Workshop "Toward a 3rd generation European Gravitational Wave Observatory", Perugia, Advisory Committee member
 - 2002 5th Amaldi Conference on Gravitational Waves, Tirrenia, LOC member
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OUTREACH

Actively involved in outreach activities: public lectures and round-table, interviews and contributions for national and international newspapers, radios and televisions (including BBC, Euronews, RAI, El Mundo, Wired UK, La Repubblica, La Stampa).

Tv and radio – Selected contributions

- 2022 Podcast "Virgo: l'universo si fa suono", produced by RAI (Italian Television) – main role
- 2022 Documentary "Gravità" (Rai Cultura) – Feb. 15
- 2016 "Presadiretta" (RAI) – Sept. 19
- 2016 Documentary "Le onde gravitazionali" – cnrweb.tv
- 2016 "Memex" (RAI Scuola) – Apr. 7
- 2014 Spacelab (Rainews 24) – Apr. 14
- 2007 Documentary "Cosmos: a beginner's guide" – BBC

Popular science articles (invited) – Selection

- G. Losurdo e F. Ricci, Quando è arrivata l'astronomia multi-messaggero, Le Scienze, Aug 2018
- G. Losurdo e F. Ricci, L'era delle onde gravitazionali, Le Scienze, Oct 2017

Invited lectures – Educational (E) or Public (P) – Selection

- 2022 Kabaré – Livorno, Carico Massimo – art and science (P)
 - 2022 "Lincei per la scuola", lectures at Scuola Normale Superiore (E)
 - 2021 SWIM (Science Writers in Italy) Conference – Cascina (E)
 - 2021 SSM School on GW – Napoli (E)
 - 2020 Accademia dei Lincei. Lecture at "Corso di orientamento – Scuola Normale Superiore" (E)
 - 2020 National Geographic Festival delle Scienze – Roma (P)
 - 2019 Accademia dei Lincei. Lecture at "Corso di orientamento – Scuola Normale Superiore" (E)
 - 2018 Festival della Scienza – Genova (P)
 - 2018 Focus Festival – Milano (P)
 - 2018 "Wave on the lakes" – Advanced School – Como (E)
 - 2018 "Osservare l'universo con le onde gravitazionali" – Como (P)
 - 2018 Agorà della Scienza – Lucca (P)
 - 2018 Palma de Mallorca (P)
 - 2018 I venerdì dell'universo – Ferrara (P)
 - 2018 Scuola Superiore S. Anna – Pisa (E)
 - 2017 Ludoteca Scientifica Pisa (P)
 - 2017 I Cieli di Brera – Milano (P)
 - 2016 Nottiestate, Arcetri Observatory – Firenze (P)
 - 2016 Caffèscienza – Firenze (P)
 - 2016 Caffè Letterario Le Murate – Firenze – Roundtable with P Tozzi (astrophysicist) and G Raffaelli (artist) (P)
 - 2016 Multi-disciplinary roundtable with R Bodei, A Giazotto, F Ferrini (P)
 - 2016 Settimana della cultura scientifica – Lecce (P)
 - 2016 CNR Pisa (P)
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