Dr. Giovanni Lamanna - Curriculum vitae

Birth: 09/09/1971, BARI (Italy).
Nationalities: FRENCH and ITALIAN.
Marital status: Married, two children.

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Current position

Director of the LAPP (*Laboratoire d'Annecy de Physique des Particules*) laboratory, Annecy, France.
Director of Research at CNRS - National Centre for Scientific Research.

Education and qualifications

- Director of Research at CNRS (2012).
- Qualification as University professor in physics (2010).
- Diploma of Habilitation to Direct Research - H.D.R., University Savoie Mont Blanc (USMB), France (2009).
- PhD in physics ("*Dottorato di ricerca in fisica*"), University of Perugia, Italy (2001).
- University degree thesis in physics ("*Tesi di laurea in fisica, 110/110 cum laude*"), University of Bari, Italy (1997).

Prizes and awards

- Awarded of the H2020 INFRAEOSC-04 funding by the European Commission: ESCAPE, "European Science Cluster of astronomy and Particle physics ESFRI research infrastructures" (2018).
- "Award for scientific excellence" conferred by CNRS (2011-2014).
- "Rossi Prize" awarded by the American Astronomical Society to F. Aharonian, W. Hoffmann, H. Voelk and the international collaboration H.E.S.S. High Energy Stereoscopic System (2010).
- Postdoctoral "Physics Research Fellowship" awarded by CERN European Organization for Nuclear Research (2002).

Research works and publications

- Publications and research notes: 276, including 166 publications in refereed journals.
- Invited communications in international conferences without written reports: 40.

Professional career path

Since 2016 at LAPP (CNRS & USMB), Annecy, France

- Director of LAPP, appointed for a second term of five years (2021-2025).
- Director of LAPP (1/9/2015-31/12/2020).
  Main highlights: the first detections of gravitational waves by Virgo project and its upgrade phases. Constant high commitment in the LHC programme at CERN with the ATLAS and LHCb experiments, producing physics results, supporting the uptake of the detector upgrading activities, including those for HL-LHC. Readdress the CERN post-LHC R&D accelerator activities from CLIC towards FCC. The observational cosmology programme launched by inaugurating and structuring the LSST project at LAPP. Main milestone achieved in gamma-ray physics with the construction of the first CTA telescope, while producing physics results with its precursor H.E.S.S. An intense neutrino physics programme with the SuperNEMO demonstrator construction, the STEREO experiment completed, operated and scientifically fully exploited as well as the R&D activity for the Proto-DUNE project laying the commitment in DUNE. A structured outreach and societal engagement programme producing, among others outcomes, the EUTOPIA exhibition, the award of the "CNRS platform" label to the LAPP-USMB-MUST data centre in support of regional SMEs and multidisciplinary studies. A relevant and successful leading commitment in open-science and open-data EU research programmes. Successfully explorative projects laying to sustainable interdisciplinary research between physics and data/computer science. The award of the Labex Enigmass national research grant in partnership with the LAPTh and LPSC regional laboratories.

- Coordinator of the H2020 ESCAPE international consortium addressing the Open Science challenges shared by ESFRI facilities (SKA, CTA, KM3Net, EST, ELT, HL-LHC, FAIR) as well as other pan-European research infrastructures (CERN, ESO, JIVE, Virgo-EGO) in astronomy and particle physics. Main focus at LAPP on open science, innovation around AI developments and training, data interoperability use cases for transversal synergies among all research teams, exa-scale "datalake" pilot model developments and operation of an open-data catalogue for astroparticle physics (2019-2023).
- Leading the FCC (Future Circular Collider) local project. Main focus: design study on particle accelerator optics and related technologies; technology R&D on beam stability and vibration control for the machine-detector interfaces; FCC-ee environmental, innovation and socio-economic regional impact feasibility study (2018-).
- Principal Investigator of the H2020 ASTERICS-OBELICS work programme: a pan-European cluster action enabling multi-wavelength/multi-messenger interoperability and software re-use for the data generation, integration and analysis of astronomy and astroparticle physics ESFRI facilities (2015-2019).

2006-2016 at LAPP (CNRS & USMB), Annecy, France

CNRS Senior Researcher

- Head of the LAPP gamma-ray Astronomy research team within the H.E.S.S. (High Energy Stereoscopic System) and the CTA (Cherenkov Telescope Array) international collaborations (2009-2016).
- Leader of the security and control system (2006-2010) of the camera of the fifth H.E.S.S telescope and coordinator of the deployment of the automatic unloading camera system (2010-2012) developed at LAPP.
- Coordinator of the LAPP gamma-ray physics analysis programme. Main focus on indirect Dark Matter search, non-thermal emission from Pulsar Wind Nebulae, Blazars and star forming regions; data and multivariate reconstruction algorithms' development (2006-2016).
- Coordinator at LAPP of the scientific project and the development programme of new technologies for CTA: design, prototype and construction of the first LST (Large-Sized Telescope) "Camera Support Structure" and "Drive System". Main focus on telescope technologies such as composite mechanical structures, mechatronic system and front-end services (2009-2016).
- International coordinator of the Data Management project of the CTA Consortium for the preconstruction phase, finalized with a technical design of the computing, data archive, data access and data production model for the CTA Observatory (2010-2016).
- Appointed as national project manager for computing and data science within the IN2P3-CNRS directorate. Main focus on research policy, national lead and pan-European coordination on computing and data science, building cooperative frameworks with High Performance Computing platforms and strengthening the cooperation with the European Commission on the evolution of the e-infrastructures for science (2013-2015).
- Leading the R&D activities for POLAR, a space-based polarimeter dedicated to Gamma Ray Bursts (GRBs) with a main focus on the design of a micro-electronic front-end circuit for signal triggering and data reduction (2006-2010).

2004-2005 at CPPM, Centre de Physique des Particules de Marseille, France

Recruited at CNRS as permanent First-Class Research Scientist.

- Member of the ANTARES - "Astronomy with a Neutrino Telescope and Abyss environmental RESearch" international collaboration. Data analysis and responsible for team supervision for the electronics integration tests, synchronisation and time calibration of ANTARES' optical photo-detection modules as well as for the test bench for the calibration of ANTARES detection lines (2003-2004). Main focus: neutrino physics and Dark Matter search; Monte Carlo simulations; Detector front-end software; detector construction and commissioning.

2002-2003 at CERN, Geneva, Switzerland

CERN Research Physics Fellow.

2000-2001 at University of Geneva, Switzerland

Maître Assistant and "Angelo Della Riccia, first class young Italian scientists abroad PostDoc fellow".

- Postdoctoral research activity within the international collaboration AMS-2 (Alpha Magnetic Spectrometer-2), an experiment on board the International Space Station, within the CERN team. Main focus: Cosmic-ray and Gamma-ray astrophysics; Dark Matter search; Monte Carlo simulations; Silicon Tracker Detector optimization and data reconstruction software.

1997-2000 at CERN, Geneva, Switzerland

Undergraduate CERN scientific associate for INFN Perugia and for a 30 months long-term stay abroad.

1998 at NASA Johnson Space Center, Houston, USA

Joining the ground-segment control team during the NASA space shuttle mission STS-91.

- PhD thesis at University and INFN, Perugia, Italy, under the direction of R. Battiston and in the CERN team led by S. Ting, within the international collaboration AMS, an experiment aboard the NASA Space Shuttle Discovery. Main focus: Cosmic-ray astrophysics; Data analysis; Silicon Detector Tracker on-line commissioning, off-line calibrations and data reconstruction.

1995 -1997 at CERN, Geneva, Switzerland and INFN, Bari, Italy

University Master internship work abroad (at CERN) in exemption from compulsory military service.

- Particle physics detector R&D activities in the Compact Muon Solenoid (CMS) experiment of the CERN Large Hadron Collider (LHC). Main focus: RPC gas detector development and prototype, particle beam tests and data analysis for the muon trigger system optimization.

Research Management and international responsibilities

- Director of LAPP (2015-2025).
- Member of the Management Board of LabEx ENIGMASS-2 (2019-2025).
- Member of CNRS national and local steering/consultative bodies (USMB, UGA) as director of LAPP.
- Coordinator of the H2020 ESCAPE international consortium (2019-2023).
- Coordinator of the OBELICS sub-project of the H2020 ASTERICS consortium (2015-2019).
- Spokesperson of the International inter-agency research consortium EU-T0 (2015-2017).
- Member of the Institution Board of the international project FCC (2017-) and of the General Assembly of FCCIS (2020-).
- Member of the Scientific Strategy Council of the European Open Science Cloud HUB (2018-2020).
- National Project Manager for computing and data science for the management of the IN2P3-CNRS institute (2013-2015).
- Team leader at LAPP for H.E.S.S. (2010-2016), CTA (2009-2016) and POLAR (2007-2010) projects.
- Member of the Steering Committee of the "Large Size Telescope" project of the CTA consortium (2010-2017).
- Coordinator of the international "CTACG - CTA Computing Grid" project for the application of Grid infrastructures for the management and analysis of CTA's Monte Carlo data (2009-2014).
- Representing France in the Computing Resources Scrutiny Group (CRSG) for LHC experiments at CERN (2011-2014).
- Coordinator of the CTA “Data Management” and the CEIN-CTA "E-infrastructures and Data dissemination" Work Package within the international organisation of CTA in the context of the EU-FP7 project - "CTA Preparatory Phase" (2010-2014).
- Member of the International Project Committee of the CTA consortium (2009-2017).
- Secretary of the Publications and Conferences Committee of the AMS international collaboration (2001-2003).
- Coordinator of the "Gamma-ray physics" working group of the AMS international collaboration at CERN (2000-2003).

Teaching, training and doctoral/postdoctoral supervision

- Teaching physics and mathematics at the University Savoie Mont Blanc (2009-2011).
- Teaching in summer schools:
  - *Course "Cosmic radiation and indirect dark matter research" at the Transalpine doctoral school 2004.*
  - *Course "Data Challenges in Astronomy and Astroparticle Physics" G. Lamanna. International School IHPCSS 26-30 June 2016, Ljubljana, Slovenia.*
  - *Course "Experimental Astroparticle Physics" G.Lamanna- GRASPA school 2013 - Annecy-LAP.P*
  - *Course " Gamma-ray Experimental Physics " G.Lamanna - Gif school 2013 - Annecy-LAPP.*
- Organisation of the Gif School 2013, 16-20 September 2013.
- Establishing the " OBELICS international school on high performance analysis software in Astroparticle", Annecy 2017-9.
- Supervisor of 8 Master 1 and Master 2 internships.
- Direction/(co-)supervision of 6 PhD theses.
- Supervision of 6 long-term postdocs.
- Examiner of 11 doctoral theses and 7 Habilitation à Diriger des Recherches (HDR).

Outreach and dissemination of the scientific culture

- Various interviews (press, TV and radio), seminars for the general public, high schools and schools, articles for the public, receptions and guides for students, political delegations and the general public.
- Organisation and promotion of outreach projects at LAPP "Discovery exhibition - EUTOPIA" and "Training by doing".
- Organisation and promotion of events with a wide reach.
- Editorial Manager of the "IN2P3 Newsletter" (2013-2015).

Scientific administration

- Member of the selection committee for 3 University tenured positions and president for a CNRS engineer competition.
- Internal and external reviewer of scientific publications of research collaborations as well as rapporteur for various research projects and funding proposals.
- Leading the organisation of 14 workshops, congresses, international schools and 21 meetings of scientific collaborations.
- Member of the Board of Directors (for CNRS and USMB) of the regional CIMES competitiveness cluster (2019-).
- Member of the Scientific Advisory Board of "Computing and Software for Big Science" journal, Springer Publisher (2017).
- Member of the Scientific Evaluation Committee of the SESAME research grants Île de France Regional Council (2016-7)
- Member of the laboratory council and the scientific council of LAPP (2008-2011).
- Scientific convener for the preparation of H2020 projects for e-Science within APPEC (2014).

Research grants, fellowships and industrial cooperation

During the last 9 years I have generated at CNRS more than €32 million in research funding (as PI or Co-PI).

As LAPP director I manage an average annual research budget of €3 million (excluding payroll that counts for about €10 million per year) and about half of which composed of an annual state grant from the laboratory authorities CNRS-IN2P3 and USMB.

The most personal relevant achievements are:

- Research grant of 0.5 M€, for the feasibility study FCC-IS project in cooperation with CERN and in response to the H2020 INFRADEV call for tenders and funded by EU with 3 M€ (2020).
- Co-funding grant IDEFICS project, AuRA Region and European Regional Development Fund, 1 M€. Strengthening economic cohesion by supporting small and medium-sized enterprises (SMEs) in key areas such as innovation, research and digital agenda leveraging the MUST platform and LAPP competences in ICT and data science (2020).
- National LabEx ENIGMASS-2 network grant for the research teams of three regional laboratories LAPP, LPSC and LAPTh, 2.8 M€ (2019).
- Research grant for a 2-year PostDoc fellowship within the H2020 EOSC-Enhance project (2019).
- ESCAPE research grant in response to the H2020 INFRAEOSC call for tenders and funded by EU with 16 M€ (2018).
- Research grant for R&D in future particle-physics accelerator technologies in cooperation with CERN and funded by regional public authority *(Conseil Départemental Haute Savoie),* 0.4 M€ (2017).
- OBELICS sub-consortium research grant of 6.4 M€ of the ASTERICS project in response to the H2020 INFRADEV call for tenders and funded by EU with 15 M€ (2014).
- Research grant of 0.1 M€ for R&D in Artificial Intelligence in cooperation with an Italian SME (OROBIX) for the CTA scientific data reconstruction pipeline and within the ASTERICS-OBELICS project (2017).
- Research grant for a 3-year PostDoc fellowship for the "Blazars studies in high energy gamma-ray astronomy" in response to a Labex - ENIGMASS project call for tenders (2013).
- Research grant of 3.8 M€, from the French government (under the *TGIR – Tres Grandes Infrastructures de Recherche* framework) for the construction of four LST telescopes for the CTA-North site (2018).
- Research grant of 0.13 M€, for technical R&D in cooperation with national SMEs (Rivoire et LORIMA) for the CTA-LST design studies and within the "CTA Preparatory Phase" project in response to the FP7 INFRADEV call for tenders and funded by EU with 6 M€ (2010).
- Co-funding cooperation grant for CTA-LST1 by regional public authorities (*Conseil Régional de Bretagne and Département du Morbihan*) of 0.25 M€ (2010).
- CNRS Research grant for a 3.5-year PostDoc fellowship for the "CTACG feasibility study and physics analysis" in response to the ASPERA (the European Astroparticle Physics Consortium) call for tenders (2010).
- Research grants for a total of 90 k€ funded by USMB for R&D projects in microelectronics and mechatronics, for the POLAR and CTA R&D research projects (2008-2013).