GRAN SASSO SCIENCE INSTITUTE

Curriculum vitae

AREA OF INTEREST AND RESEARCH

- Development of particle detection techniques
- Cosmic Ray physics
- Neutrino and Dark Matter physics
- Scientific space missions with Micro- and Mini-satellites
- Detection of particles in space
- Design of hybrid payloads for studies related to the development of life in space
- Detection techniques applicable to cultural heritage

WORK EXPERIENCE

09/2024 – present	*Associate Professor*, Gran Sasso Science Institute (GSSI), L'Aquila, Italy
09/2021 – 08/2024	*Assistant Professor*, Gran Sasso Science Institute (GSSI), L'Aquila, Italy
09/2017 – 07/2021	*Research Scientist*, New York University Abu Dhabi (NYUAD), Abu Dhabi, UAE
11/2014 – 08/2017	*Assistant Research Scientist*, New York University Abu Dhabi (NYUAD), Abu Dhabi, UAE
10/2013 – 10/2014	*Post-doc Associate*, New York University Abu Dhabi (NYUAD), Abu Dhabi, UAE
06/2010 – 08/2013	*Post-doc Associate*, Gran Sasso National Laboratory (LNGS) of INFN, Assergi (AQ), Italy
11/2007 – 05/2010	*Art. 2222*, Laboratori Nazionali del Gran Sasso (LNGS) of INFN, Assergi (AQ), Italy

BIBLIOMETRIC INDICATORS

- *INSPIRE:* H-INDEX: **40** - CITATIONS: **11192**
- *WEB OF SCIENCE:* H-INDEX:**36** - CITATIONS: **6894**
- *SCOPUS:* H-INDEX:**36** - CITATIONS: **7798**

EDUCATION

2004-08	University of L'Aquila: Ph.D. in Physics - "Study and realization of a resistive plate chamber system for the VETO planes and the magnetic spectrometers of the OPERA experiment", Supervisors: Prof. Piero Monacelli, Dr. Carlo Gustavino
1999-2004	University of L'Aquila: Degree in Physics - "Study of Glass Resistive Plate Chambers", Supervisors: Prof. Piero Monacelli, Dr. Carlo Gustavino

PROFESSIONAL QUALIFICATIONS

2019 National Scientific Qualification (ASN) for the role of Associate Professor 02/A1.

2013 EU Reserve list EPSO/CAST/S/5/2013 (FG IV).

ACADEMIC BOARD

From 2023 Doctorate course in Astroparticle Physics, GSSI.

From 2023 Doctorate course in Innovative Technologies for Space Missions and Radiation Detection, GSSI.

TEACHING

2024 Course instructor for "**Introduction to Nuclear and Particle Physics**", Doctorate course in Innovative Technologies for Space Missions and Radiation Detection, GSSI, GSSI

2022-24 Course instructor for "**HE-3: High Energy Radiation Measurements (LAB)**", Doctorate course in Astroparticle Physics, GSSI

2022-24 Course instructor for "**HE-5: Front-end and readout electronics**", Doctorate course in Astroparticle Physics, GSSI

2013-19 Assistant for the course "**Advanced Physics Laboratory**", Division of Science, NYUAD

2017-18 Guest Lecturer for the course "**Instrumentation, Sensors and Actuators**", Engineering Department, NYUAD

2016-19 Guest Lecturer for the course "**The "7 Wonders""**", Division of Science, NYUAD

2016-17 Guest Lecturer for the course "**Quantum Theory and Relativity**", Division of Science, NYUAD

2016-17 Guest Lecturer for the course "**Conserving Our Global Heritage through Science**", Division of Science, NYUAD

2016-17 Guest Lecturer for the course "**Space**", Division of Science, NYUAD

FUNDING

2023-2025 **COSMIC "COntrolled Space MIcroecological system supporting eCopoiesis"**, PRIN: Research Projects of National Interest, Italy.
Role: *Co-Principal Investigator*
Allocated funds: *64,525 EUR*

2018-2021 **The LIGHT-1 mission**, The Space Agency of the United Arab Emirates, Abu Dhabi, United Arab Emirates.
Role: *Co-Principal Investigator*
Allocated funds: *100,000 USD*

2014-2016 **The XENON Dark Matter Project at NYUAD**, New York University Abu Dhabi, United Arab Emirates.
Role: *Co-Principal Investigator*
Allocated funds: *350,000 USD*

CAREER HIGHLIGHTS

2021-Present, Gran Sasso Science Institute - Research/Teaching

- Technical Manager of the NUSES space mission;
- Design and development of the scientific and technological component of the NUSES space mission;
- Operation of the LIGHT-1 mission payload and data analysis;
- Characterization of the SiPM timing for the plastic scintillator detector of the HERD mission.
- Member of the Local Committee of the UHECR conference (October 3-7, 2022) held at GSSI.
- Member of the Local Committee of the Hands On school (September 25 - October 6, 2023) held at the Gran Sasso National Laboratories.
- Co-Supervisor of the GSSI PhD student in Astroparticle Physics, Leandro Silveri.
- Co-Supervisor of the SST (Space Science and Technology) PhD student, Iqra Siddique.
- Supervisor of the PhD student in Innovative Technologies for Space Missions and Radiation Detection, Giulio Fontanella.
- Student mentoring and academic services.

RELEVANT EVENTS

2013-2021, New York University Abu Dhabi - Research

- Design and set-up of the astroparticle laboratory at NYUAD;
- Design, realization and characterization of X-ray and gamma-ray detectors based on photosensors coupled to scintillating crystals;
- Design, realization and characterization of muon tracking systems with SiPM;
- Development and characterization of cryogenic electronics for the operation of photomultipliers and Multi-Pixel Photon Counters (MPPC) sensitive to the VUV wavelength range;
- Design, simulation, realization, characterization and commissioning of the LIGHT-1 (former RAADSAT) mission payload;
- Development and assembly of the X-ray fluorescence scanner (XRF) of the NYUAD basic technological platform for measurements of interest for Cultural Heritage;
- R&D of 3D printed components for high vacuum applications for operations of interest in Cultural Heritage (MACHINA);
- Participation in the operations of XENON100-XENON1T-XENONnT;
- Convener WG5: "Light and Charge readout and DAQ" of the DARWIN experiment;
- Processing of observational data from the SWIFT space mission using the Open Universe and Firmamento platforms;
- Coordinator of outreach activities of the NYUAD astroparticle laboratory;
- Mentoring of students and research assistants (undergraduate).

CAREER HIGHLIGHTS

2003-2013, Gran Sasso National Laboratories - Service/Research

- Design, R&D, characterization and serial production of glass resistive plate chambers for the VETO system of the OPERA experiment;
- Realization of the OPERA experiment VETO system ($200\ \mathrm{m}^2$ of sensitive area);
- Realization and characterization of the first batch of Multigap Resistive Plate Chambers (MRPC) of the EEE experiment;
- Design and realization of professional instrumentation (cloud chambers, particle detectors, muon tracking systems) for the study and real-time visualization of cosmic rays;
- Institutional communication and scientific information, interface with press and media;
- Organization of national and international science and physics schools for students and educators;
- Design and setting up of content for Museums and Science Centers.

ROLES OF RESPONSIBILITY

2024-present **Technical Manager** of the NUSES mission.

2022-present **Responsible** for the Electronics and DAQ system of the Zirè payload of the NUSES mission.

2021-present **Member** of the DAMPE collaboration.

2021-present **Member** of the HERD collaboration.

2021-present **Member** of the NUSES collaboration.

2014-2021 **Member** of the XENON collaboration.

2014-2021 **Manager** Director of the Astroparticle Laboratory at NYUAD and responsible for the development of detectors for the space environment, cosmic ray tracking systems, environmental monitoring and cryogenic applications.

2014-2016 **Co-Principal Investigator** of the grant *The XENON Dark Matter Project at NYUAD* funded through "NYUAD Research Enhancement Fund (REF)".

2016-2021 **Member** of "Emirates Space and Innovation Group (ESIG)", the National Institute of the United Arab Emirates for scientific and technological activities related to Space.

2016-2021 **Member** of the DARWIN collaboration.

2016-2021 **Member** of the INFN network for cultural heritage (CHNET) and Co-Responsible for the NYUAD node.

2017-2018 **Run Coordinator** of XENON1T.

2018 Offline data quality **manager** of XENON1T.

2018-present **Co-Principal Investigator** of the LIGHT-1 project, a 3U Cubesat mission with the aim of revealing Terrestrial Gamma-ray Flashes, mapping the South Atlantic Anomaly and qualifying the technology used.

2018-present **Head** of the design of the LIGHT-1 scientific and technological payload, construction, testing, commissioning and in-flight operations.

2019-present **Member** of the Open Universe project development group, a UN initiative aimed at increasing the usability of scientific data produced by space missions.

2021-present **Co-Principal Investigator** of the Firmamento project, an instrument that allows to discover and study blazars starting from existing multi-wavelength observations.

2019-2021	**Convener** of the working group "Light and Charge readout and DAQ" of the DARWIN experiment.
2019-present	**Member** of the Center for Astro, Particle, and Planetary Physics at NYUAD.
2003-2010	**Member** of the OPERA experiment.
2003-2010	**Co-Responsible** for the OPERA experiment VETO system.
2003-2008	**Responsible** for the development, standardization and construction of glass resistive plate chambers for the instrumentation of the OPERA experiment VETO system.
2003-2010	**Co-Responsible** for the OPERA experiment XPC system.
2004-2013	**Member** of the Extreme Energy Event (EEE) project collaboration.
2008	**Responsible** for the commissioning of the OPERA experiment VETO system.
2008	**Responsible** for the commissioning of the OPERA experiment XPC system.
2009-2012	**Co-Responsible** for the Gran Sasso - Princeton summer school (4 editions).

- *ECRS 2024: The 28th European Cosmic Ray Symposium*, September 23 - September 27 2024, Hvar, Croatia Talk: *The Zire' instrument onboard the NUSES space mission* https://drive.google.com/file/d/1hhSiF3s0kLW2dVuXdHz72gvuyqH5zyeI/view?usp=share_link
- *ICHEP 2024: International Conference on High Energy Physics*, July 18 - July 24, 2022 Prague - Czech Republic Talk: *The Scientific Payload of the NUSES space mission* https://indico.cern.ch/event/1291157/contributions/5904770/attachments/2900828/5086978/AdrianoDiGiovanni_ICHEP2024_Final.pdf
- *EPS-HEP 2023: European Physical Society Conference on High Energy Physics (EPS-HEP)*, Aug 20 - 25, 2023 Amburg - Germany Talk: *The NUSES space mission* https://indico.desy.de/event/34916/contributions/146956/
- *ASAPP 2023: Advances in Space AstroParticle Physics: frontier technologies for particle measurements in space*, June 19 - June 23, 2023, Perugia - Italy Talk: *LIGHT-1: A 3U Cubesat Mission for the detection of Terrestrial Gamma-Ray Flashes* https://indico.cern.ch/event/1208314/contributions/5342879/
- *AtmoHEAD 2022: Atmospheric Monitoring for High Energy Astro Particle Detectors*, July 13 - July 15, 2022 Villa Orlandi - Anacapri - Italy Talk: *LIGHT-1: A 3U Cubesat Mission for the detection of Terrestrial Gamma-Ray Flashes* https://agenda.infn.it/event/30210/contributions/171134/
- *ICHEP 2022: International Conference on High Energy Physics*, July 6 - July 13, 2022 Bologna - Italy

  Talk: *LIGHT-1: A 3U Cubesat Mission for the detection of Terrestrial Gamma-Ray Flashes* https://agenda.infn.it/event/28874/contributions/169581/
- *ICHEP 2022: International Conference on High Energy Physics*, July 6 - July 13, 2022 Bologna - Italy

  Talk: *The NUSES space mission* https://agenda.infn.it/event/28874/contributions/169555/
- *PM2021: 15th Pisa Meeting on Advanced Detectors*, May 22 - May 28, 2022 La Biodola - isola D'Elba - Italy

  Talk: *The Scientific Payload of LIGHT-1: A 3U Cubesat Mission for the detection of Terrestrial Gamma-Ray Flashes* https://agenda.infn.it/event/22092/contributions/167312/
- *The Firmamento Workshop, Citizen Researcher, NYUAD*, 13/04/2023 Abu Dhabi - UAE. Talk: *Nano- to Mini-satellite and Firmamento*
- *TEDx Talk*, 27/10/2018 Dubai - United Arab Emirates. *How the Universe Shapes its Mind*
- *ICHEP 2020: International Conference on High Energy Physics*, July 28 - August 06, 2020 Prague - Czech Republic. Talk: *The DARWIN experiment: the ultimate detector for direct dark matter search* https://indico.cern.ch/event/868940/contributions/3814883/attachments/2080576/3496653/DARWIN_ICHEP.pdf
- *ICASIPM 2018: International Conference on the Advancement of Silicon Photomultipliers*, June 11 - June 15, 2018 Schwetzingen - Germany. Talk: *Cryogenic Readout Electronics for a MPPC Based Array Operating at Liquid Xenon Temperature* https://indico.gsi.de/event/6990/session/9/contribution/1/material/slides/0.pdf

- *CNNP2017: Conference on Neutrino and Nuclear Physics*, October 15 - October 21, 2017 Catania - Italy. Talk: *A Multi-Pixel Photon Counter detector prototype for direct detection of scintillation light in liquid xenon* https://agenda.infn.it/event/12166/contributions/12631/attachments/9324/10529/Adriano_VUV4_CNNP.pdf
- *LIDINE2017: LIght Detection In Noble Elements*, September 22 - September 24, 2018 SLAC National Accelerator Laboratory - Stanford, USA. Talk: *Cryogenic readout for multiple VUV4 Multi- Pixel Photon Counters in liquid xenon* https://indico.physics.lbl.gov/indico/event/545/contributions/1224/
- *TIPP2017: Technology and Instrumentation in Particle Physics*, May 22 - May 26, 2017 Beijing International Convention Center, Beijing, China. Talk: *A stand alone muon tracking detector based on the use of Silicon Photomultipliers* https://indico.ihep.ac.cn/event/6387/session/31/contribution/66
- *Rencontres de Moriond - Cosmology 2016*, March 19 - March 26, 2016 La Thuile - Italy. Talk: *The XENON1T Dark Matter experiment* http://moriond.in2p3.fr/J16/transparencies/2_monday/1_morning/1_digiovanni.pdf

Pursuant to the provisions of Law 679/2016 of the European Parliament Regulation of April 27, 2016, I hereby express my consent to the processing and use of my data provided in this CV.