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Education

- 1993-1997: Ph.D. in Physics, University of Genova
- 1988-1993: Degree in Physics, University of Genova

Work Experience

- 2020-present: INFN senior research staff
- 2020-2021: CERN Scientific Associate
- 2005-2019: INFN research staff
- 2006-2009: CERN Project Associate
- 1998-2005: Post-Doc fellowships, University of Genova
- 1993-present: CERN user

Scientific and/or Technical Expertise

- I am a physicist of the INFN (Istituto Nazionale di Fisica Nucleare) working in High Energy Physics Experiment, focused on tracker detectors. My main scientific activity has been at the ATLAS experiment at the LHC accelerator of CERN.
- I am interested in physics measurements strongly correlated with tracking.
- I have participated to the construction of the ATLAS Pixel detector and its upgrade in 2015. And now I am working in the tracker upgrade for ATLAS at the High Luminosity LHC (Phase-2) foreseen starting in 2029.
- I am also interested in R&D for future pixel detector: I am an expert in 3D sensors, but also interested in LGAD in the context of the European grant AidaInnova.
- I am actively working in publications: as a member of the ATLAS publication committee, in several editorial boards, and reviewer of several international journals.

Main appointments

ATLAS International Collaboration

- 2024: Selected candidate for ATLAS spokesperson
- 2023-: coordinator ATLAS ITk 3D modules
- 2019-2023: Project Leader di ATLAS ITk (deputy in 2017-2018)
- 2015-17: Co-chair of the ATLAS Phase-2 tracker (ITk) Layout Task Force
- 2006-2008: ATLAS Pixel Commissioning and Run Coordinator
- Editor of IBL (2009), ITk Strip and ITk Pixel Technical Design Reports (2017)

- 2019-2023: Member of the ATLAS Executive Board
- 2016-2017: Member of the ATLAS Advisory Board
- 2012-2013: ATLAS Publication Committee Member

International Committees

- 2023-present: Member of the Detector R&D Committee (DRDC)
- 2019-: Convener European project H2020-INFRAINNNOV-2019-2020 AIDAInnova WP6 *Hybrid Pixels Sensors for 4D Tracking and Interconnection Technologies*
- 2017: Member of LHCC-UCG review committee of CMS Phase-2 Tracker

INFN national committees

- 2023-present: ATLAS Phase-2 Upgrade National Coordinator
- 2019-present : INFN referee of the CERN COMPASS/Amber experiment
- 2014-2019: ATLAS Genova Institute representative
- 2009-2013: INFN ATLAS Pixel National Coordinator

International Reviewer

- I have been acting as supervisor for several Funding Agencies:
 - SNSF Swiss National Science Foundation, Switzerland national grants;
 - NWO, the Dutch Research Council
 - Natural Sciences and Engineering Research Council of Canada (NSERC), Discovery Grant proposal
 - South Africa's National Research Foundation (NRF), Career evaluation
 - Lawrence Berkeley National Laboratory, Career evaluation
 - Helmholtz Young Investigator Groups program

Outreach and Teaching

- 2021: Guest Scientist in [La Teoria di tutte](https://greisonanatomy.com/2021/10/18/teoria/), TV series on Women in Science by Gabriella Greison, <https://greisonanatomy.com/2021/10/18/teoria/>
- 2020: Author of *The ATLAS portraits series*: <https://atlas.cern/updates/portrait/claudia-gemme>
- ATLAS guide at CERN.
- Organizer of ATLAS laboratory proposal at the *Festival della Scienza* in Genova in 2016/2018.
 - Several seminars done at public schools.
- Professor of Physics Laboratory of Fundamental Interactions and Astrophysics for graduate students and Hadronic Colliders for Ph.D. students at Genova University.
 - Supervisor of several master and Ph.D. students.
- Supervisor of Summer student exchange INFN-DOE: 4 students in Genova mentored between 2016-2023

Awards

- Award "Cultura Luigi Casati" for Scientific master Thesis – Accademia dei Lincei (1994)

Conferences

- International Advisory Board member of the Pixel detector Workshop (PIXEL)
- International Advisory Board member of the Vertex detector Workshop (VERTEX)
- Chair and Proceedings Editor of VERTEX 2023, Sestri Levante, Italy, 2023
- Chair and Proceedings Editor of IFAE 2016, Incontri di Fisica delle Alte Energie, Genova, Italy, 2016
- Local committee of

- 8th Workshop on semiconductor Pixel detectors for particles and imaging (2016)
- 9th “Trento” Workshop on Advanced Silicon Radiation Detectors (2014)
- VI Italian workshop on p-p physics at the LHC (2013)
- Scientific Convener at
 - DIS 2023, Deep Inelastic Scattering Conference (East Lansing, US, 2023)
 - 15th Pisa Meeting on Advanced Detectors (Elba, 2022)
 - IFD, INFN Workshop on Future Detectors (Bari, 2022)
- Several talks at international conferences. The most recent and/or relevant:
 - *The ATLAS HL-LHC program*, Technology and Instrumentation in Particle Physics (TIPP 2023), Cape Town, South Africa
 - *Recent results on long lived particles searches at the LHC*, Pitlochry, UK (ISMD 2022)
 - *Prospects at HL-LHC for long-lived particles searches and detection (ATLAS, CMS, LHCb)*; LHCP 2018, Bologna, Italy, 2018
 - *ATLAS Latest results from Run2*, TOP 2016, Olomouc, Czech Republic, 2016
 - *The ATLAS Upgrade program*, LHCP 2014, New York, NY, USA, 2014
 - *Overview of the ATLAS Insertable B-layer (IBL) project*, RD11, Firenze, Italy, 2011
 - *Status of the ATLAS detector and its readiness for early BSM*; Les Rencontres de Physique de la Vallée d'Aoste, La Thuile, Aosta Valley, Italy, 2009

Publications

- Author of more than 1200 papers, with h_{HEP} -index 190 and citation average per paper 139
- Proceedings Editor of VERTEX 2023, IFAE 2016, Pixel 2016
- Referee of Jinst, IEEE
- Chair and Members of several ATLAS papers on Tracking/b-tagging, Standard Model, SUSY and Exotics analysis.
- A short list below:
 - S.Terzo, M.Boscardin, J.Carlotto, G.F.Dalla Betta, G.Darbo, O.Dorholt, F.Ficarella, G.Gariano, C.Gemme and G.Giannini, et al, Novel 3D Pixel Sensors for the Upgrade of the ATLAS Inner Tracker, *Front. in Phys.* 9 (2021), 2, doi:10.3389/fphy.2021.624668
 - P.Conci, G.Darbo, A.Gaudiello, C.Gemme, S.Girardi, A.Lapertosa, F.Mattedi and A.Volpe, Wafer Level Packaging Technology Applied to Pixel Detectors, *Front. in Phys.* 9 (2021), 27, doi:10.3389/fphy.2021.625685
 - C.Gemme [ATLAS], The ATLAS tracker detector for HL-LHC, *JPS Conf Proc* 34 (2021) 010007
 - M. Aaboud et al. [ATLAS Collaboration], Search for heavy charged long-lived particles in proton-proton collisions at $\sqrt{s} = 13$ TeV using an ionisation measurement with the ATLAS detector, *Phys. Lett. B* 788, 96 (2019)
 - B. Abbott et al. [ATLAS IBL Collaboration], Production and Integration of the ATLAS Insertable B-Layer, *JINST* 13 (2018) no.05, T05008
 - G. Aad et al. [ATLAS Collaboration], Search for metastable heavy charged particles with large ionisation energy loss in pp collisions at $\sqrt{s} = 8$ TeV using the ATLAS experiment, *Eur. Phys. J. C* 75 (2015) no.9, 407
 - C. Gemme, 3D sensors for tracking detectors: present and future applications, *PoS Vertex2013* (2013), 028, doi:10.22323/1.198.0028
 - G. Aad et al. [ATLAS Collaboration], Observation of a new particle in the search for the Standard Model Higgs boson with the ATLAS detector at the LHC, *Phys. Lett. B* 716, 1 (2012)
 - A. Andreazza, K. Einsweiler, C. Gemme, L. Rossi and P. Sicho, Effect of accidental beam losses on the ATLAS pixel detector, *Nucl. Instrum. Meth. A* 565 (2006) 50

Short summary of Scientific Activity

- WA92 experiment at CERN Omega spectrometer (1993-1997)
 - Measurement of the total beauty cross-section; Measurement of the kinematic and topological properties of the heavy quarks, charm and beauty.
- Construction of the ATLAS Pixel detector in Genova (1998-2006)
 - *Electronics*: Contribution to the simulation of the read-out chain; Software for the Module Flex circuit test setup. *Sensors*: measurement of the depletion voltage via β -sources. *Mechanics*: responsible for the qualification of the module-stave adhesive. *Hybridization*: collaboration with Alenia Marconi System (now Leonardo) to qualify the In bump technique. *Test beam*: participation at the test- beam activities, hardware and software; experimental study of the effects of the accidental LHC beam losses on the pixel detector.
 - *Pixel Modules production*: Responsible for the production and qualification of modules in Genova (1/3 of the total production) and their loading on the mechanical supports.
- Pixel Activity at CERN (2006-2008)
 - Responsible of the electrical tests during the Detector integration on surface and the Installation of the Pixel Package in the ATLAS detector.
 - Pixel Run coordinator during the commissioning of the detector and first operation in ATLAS.
- IBL project (2009-2014)
 - Qualification of the 3D sensors, particularly for the FBK (Trento), and collaboration with CNM (Barcellona). Production and qualification of the internal services multilayer Flex circuit in collaboration with CERN. Responsible for the IBL module production and qualification in Genova.
 - Editor of the IBL construction Paper.
- ATLAS Phase-2 Upgrade
 - Study of radiation hardness of silicon modules within HiRadMat (High-Radiation to Materials) program. I have been responsible of the Pixel part of the program. (2017-18)
 - R&D on small-pitch, high-density bump-bonding and 3D detectors, in particular their performance after irradiation.
 - Co-chair of the Layout Task Force to finalize the design of the tracking detector for ATLAS in Phase-2.
 - Leader of Italian effort to assume the responsibility to build a Pixel End-Cap.
 - From September 2017, I have been ITK Deputy Project Leader with role in the finalization of the ITk Pixel TDR, preparation of the LHCC and UCG review and writing of the Memorandum di Understanding.
 - From March 2019 I am the ATLAS ITk Project Leader.
- Physics Analysis in ATLAS
 - Study of the ionization in the pixel detector, initially in cosmics data taking commissioning, then with pp collisions. Definition of the “pixel dE/dx ”, truncated average ionization for a charged particles crossing the pixel detector.
 - Search of the pixel dE/dx to identify low- β particles (protons, kaons, pions) and its use to search for heavy charged long lived particles (LLP) crossing the tracking system.