

Curriculum Vitae

Stefano Veneziano [REDACTED]

Current position:

Dirigente di Ricerca, Prima Fascia (Research Director) at Istituto Nazionale di Fisica Nucleare, Sezione di Roma.

Responsibility for research projects financed and refereed by national and international reviewers.

- KLOE Experiment (Frascati, Italy), Drift Chamber Readout System Coordinator, 1994-1997.
 - The First-level muon Barrel trigger system of the ATLAS experiment (CERN, Switzerland), INFN Project Leader (full responsibility of 4.45 MEuro of CORE value, 84 months), 2001-2008. ATLAS Coordinator in 2000-2008.
 - The First-level Muon trigger system of the ATLAS experiment (Barrel, Endcap, Central trigger Interface), Coordinator (63 months), 2002-2007.
 - The First-level trigger system of the ATLAS experiment, Coordinator (13 months), 2007-2008.
 - MCS (MicroCapillari Scintillanti) INFN Project, on the development of a new detector based on scintillating micro capillaries, for applications in hadron therapy and tracking in particle physics, (Coordinatore Nazionale) 2012-2014.
 - ATLAS First-level trigger Coordinator, 2013-2015.
 - ATLAS First-level trigger Phase-I Upgrade Coordinator, since April 2013.
 - ATLAS TDAQ Phase-II Upgrade Project, Deputy Project Leader, Coordinator of the activities of the Level-0 Calorimeter, Muon, Global and Central Trigger Working Groups, since February 2017.
 - ATLAS Italia Upgrade Coordinator, October 2017- September 2019.
 - ATLAS Trigger and Data Acquisition, Project Leader, since September 2019.
- **Research contracts from international institutions**
- visiting scientist (Scientific Associate) at CERN Experimental Physics Division, January 1999 - March 2000.
 - visiting scientist (Scientific Associate) at CERN, Experimental Physics Division, July 2006 - July 2007.
 - project Associate at CERN, Experimental Physics Division, for the ATLAS Experiment August 2007 - August 2008.
 - project Associate at CERN, Experimental Physics Division, for the ATLAS Experiment, since September 2017 – August 2018.
 - visiting scientist (Scientific Associate) at CERN, Experimental Physics Division, September 2018 - August 2019.

- project Associate at CERN, Experimental Physics Division, for the ATLAS Experiment, since October 2020.

- **Education and scientific career**

- October 2013-September 2017, Professor at Department of Physics of Sapienza University of Rome, by participation to the Italian academic institutions Exchange Program, Agreement between INFN and Sapienza Università di Roma. Left this appointment to visit CERN.
- in September 2013 obtained National Scientific Qualification as Full Professor (Abilitazione Scientifica Nazionale, Professore di Prima Fascia, Settore 02/A1), in the “Experimental Particle Physics” field.
- won HEPP2013 prize of the European Physical Society, as co-recipient with the ATLAS and CMS Collaborations, for the discovery of the Higgs boson.
- became Research Director (Prima Fascia) at Istituto Nazionale di Fisica Nucleare, January 2007.
- became First Researcher (Seconda Fascia) at Istituto Nazionale di Fisica Nucleare, February 2000.
- became Researcher (Terza fascia) at Istituto Nazionale di Fisica Nucleare, November 1991.
- won INFN Fellowship on Particle Physics Research (followed dedicated courses, passed final examination). February 1989 - August 1991.
- won Angelo Della Riccia Fellowship, for visiting CERN, February-December 1989.
- followed CERN-JINR School of Physics, Egmond-aan-Zee, Holland, June-July 1989.
- obtained Laurea di Dottore in Fisica at Università La Sapienza, 110/110 cum laude, discussing the thesis called "Il calorimetro a Uranio e camera a ionizzazione a liquido a temperatura ambiente dell'esperimento UA1 al collider protone-antiprotone del CERN". Supervisor Professor F. Ceradini within the UA1-Rome group of INFN and Università La Sapienza, in Rome, September 1988.
- Technical Student at CERN, February 1987 - April 1988.
- Summer student at CERN, July-September 1986.

- **Functions and scientific responsibilities**

- ATLAS TDAQ Project Leader, since October 2018.
- ATLAS Italia Upgrade Coordinator, October 2017-September 2018. Left this appointment when became TDAQ Project Leader.
- ATLAS TDAQ Phase-II Upgrade Deputy Project Leader, Coordinator of the activities of the Level-0 System (includes Calorimeter, Muon, Global and Central Trigger sub-systems), since February 2017.
- Reviewer for the Italian “Progetti di Ricerca di Interesse Nazionale (PRIN) 2015” call for Research Projects of National Interest.
- Since 2014, Organiser of the TWEPP 2014 workshop, Topical workshop on electronics for Particle Physics.
- ATLAS First-level trigger Phase-I Upgrade Coordinator, a co-joint Germany, Italy, Japan, UK, US and CERN project, since April 2013.
- 2014: Reviewer for the National Science Center, Poland.
- 2014, ECFA member for the HL-LHC project, Trigger, Online and Offline Processing Group. This group provided guidelines to all experiments for the design of trigger systems, online and offline computing working at High Luminosity LHC.
- 2013, ECFA member for the HL-LHC project, muon detectors group. This group provided guidelines to all experiments for the design of muon detectors, trigger systems and related electronics working at High Luminosity LHC.
- 2013-15: ATLAS Level-1 System Coordinator.
- Reviewer for the Italian “Futuro In Ricerca 2013”, call for Grants reserved for Young Researchers.
- 2012-14: Responsible for MCS (MicroCapillari Scintillanti), a two year national project financed by INFN, for the development of a new particle detector, in collaboration with EPFL Lausanne and CERN.
- September 2007 - September 2008: Project leader of the ATLAS First level Trigger System, an international collaboration between CERN, Germany, Israel, Italy, and United Kingdom for the operation of the Calorimetric, Muon and Central Trigger Processors of the experiment.
- Referee for the Journal of Instrumentation JINST since 2007.
- March 2005 - September 2008: member of the Steering Group for the Installation and Commissioning of the ATLAS Muon Spectrometer, with responsibility of the integration of the Muon Trigger.
- Member of the Ministry of University and Research (MIUR) Reviewers (Albo Revisori MIUR) since January 2004.
- Reviewer of the MIUR program “Rientro dei Cervelli” call, dedicated to the integration in Italian academic institutions of Italian scientists working abroad, 2004.

- June 2002 - September 2007: Leader (CERN), of the LVL-1 Muon system, a collaboration of research groups from CERN, Israel, Italy and Japan. In January 2004 became member of the ATLAS Trigger and Data Acquisition Steering Group.
- September 2002 - March 2003: Observer in the National Scientific Commission I (particle physics) for National Scientific Commission V (new technologies, detectors, accelerators and instrumentation).
- September 2001 - September 2008: Leader of the First-level muon barrel trigger system of the ATLAS experiment (INFN).
- January 2000 - September 2008: Project leader (CERN) of the First-level muon barrel trigger system of the ATLAS experiment for the design, construction and Commissioning of the system, and the related Resistive Plate Chamber detector readout system.
- April 2000 - June 2006: head of the Electronics Laboratory of INFN, Sezione di Roma.
- June 1997 - December 2006: Coordinator of the KLOE drift chamber readout system, DAPHNE accelerator, Frascati, Italy.
- May 1997 - December 1998: head of the Electronics Laboratory of INFN, Sezione di Roma. Left to visit CERN.
- May 1997 - March 2003: Scientific Secretary of National Scientific Commission V.
- March 1997- March 2003: Member of INFN National Scientific Commission V. Referee for numerous INFN national projects. Coordinator of the Rome activities of National Scientific Commission V.
- March 1996 - October 1998: responsible for the data acquisition system of the Muon test facility of the ATLAS experiment, on the H8 test beam at CERN.

Scientific activity

During my scientific career I have dealt with many challenges covering a broad spectrum of subjects related to High Energy Physics: calorimetry, muon detection, gas detectors, photosensors and scintillating detectors, detector Montecarlo studies and data analysis, trigger systems, data acquisition systems, instrumentation, electronics architecture and system design, ASIC designs, large detectors design, calibration and operation.

- 1986-1989: UA1 Experiment (CERN proton-antiproton Collider), b quark production and top quark search in the semi-leptonic channel. Uranium-Tetramethylpentane warm liquid calorimeter upgrade, prototypes and testbeam studies.
- 1990-1996: WA92 Experiment (CERN West Area), beauty and charm hadro-production at the Omega spectrometer, on a 350 GeV/c pion beam. Muon filter and fast trigger design, DAQ.
- 1989-1990: Large Hadron Collider Muon Identification and Triggering working groups. Proposal for the use of Resistive Plate Chamber (RPC) detectors for fast triggering. Test beam studies at H2 and X1 beams at CERN. Montecarlo studies of hadronic punch through in Iron and measurements.
- 1990 - 1994: Research and Development experiment at CERN RD5 (trigger systems and momentum reconstruction in high magnetic field). Studies on hadronic punch through and the production of electromagnetic secondaries from high-momentum muons. RPC detector performance studies and tracking capability.
- 1992 - 1997: Research and Development experiment at CERN RD27 (first level trigger systems for LHC experiments). Definition of the trigger architecture, later used in the muon barrel of ATLAS. Development of the trigger demonstrator Application Specific Integrated Circuit, in collaboration with Rutherford, UK.
- 1993 - 1999: KLOE experiment Drift chamber (Laboratori Nazionali di Frascati), first prototypes, testbeam tests and data analysis. Development of the Time to Digit Converter ASIC of the drift chamber. Design, construction and deployment of the Drift Chamber readout system.
- 2012-2014: MCS, national coordination of a two-year project dedicated to the study of a novel liquid scintillator based detector developed using MEMS technology and micro-fluidics. The collaboration was a joint effort of INFN Rome, INFN Milan, EPFL Lausanne and CERN.
- since 1992: ATLAS Collaboration.
 - 1992- 1994: Muon Trigger group. RPC simulations and tests, contribution to the Letter Of Intent. Trigger tower prototype on test beam, data analysis. ATLAS Technical Proposal, author of chapters relative to first level muon trigger.
 - 1995 - 1999: Development of the Test Beam Data Acquisition system of all Muon detectors. Collaboration with core DAQ group developing readout architectures in RD13. Final development of the details of the detector layout and trigger architecture, including the development of the dedicated Coincidence Matrix ASIC, used for triggering and readout. Study of the effects of radiation on electronics.
 - 1999-2000: contribution to the activities of Trigger/DAQ groups at CERN, developing the first prototype of the ATLAS Read-Out-Buffer. The first element on the readout chain common to all ATLAS detectors.

- 1993-2003: responsibility of the muon barrel trigger system design, leading also the design of software applications dedicated to initialisation, control and monitoring of the system.
- 2003 - 2005: construction and assembly of the muon barrel trigger in the experiment, completion of ageing studies on detector. Final system tests on the H8 test beam facility at CERN.
- 2003 - 2007: installation and commissioning of the experiment, full responsibility for the ATLAS first level-trigger system project.
- since 2007: System calibration, optimisation of Momentum thresholds and calibration. The system is now working with more than 99% live time and efficiency on its geometrical acceptance. It is a core system necessary for the success of the ATLAS experiment.
- April 2013 - September 2018: coordination of Atlas level-1 system and upgrade activities. I proposed the use of the Tile Calorimeter Detector as a muon tagger, to reduce the fake rate of the Muon End-cap trigger in the region $1.0 < |\eta| < 1.3$. This project has been approved and now under construction. I have been co-editor of the TDAQ TDR and I am Chair or Reviewer for many detector and trigger projects which have been installed for Run2, or will be used in Phase-I.
- In February 2017 I became Deputy Project Leader of the TDAQ Phase-II Upgrade. The project has just completed its roadmap towards the TDAQ Phase-II Technical Design Report in publication. I have been co-author of Chapters 3 (Challenges and limitations of the Run-3 TDAQ systems at the HL-LHC), 4 (Architectural and Functional Requirements for the Phase-II TDAQ System) and 5 (Description of the Baseline Phase-II TDAQ System). I am coordinating the activities of the Level-0 Trigger system: L0Calo, L0Muon, Global and Central Trigger Working groups.
- Since October 2018 I am the ATLAS TDAQ Project Leader. I lead a collaboration of about 90 international institutions, responsible for the Operations of the Trigger and Data Acquisition system and for the Upgrade Projects which are currently being installed and Commission, in preparation for the Large Hadron Collider Run3 period of data taking. The total cost of the upgrade program for which I have responsibility is 7.6 MCHF, while the TDAQ operations annual cost is variable, of about 2.5 MCHF.

Publications

Author of 1029 cited papers (Scopus: h-index 105, Google Scholar: h-index 172, i-10 index 743),

WEB OF KNOWLEDGE URL: <http://www.researcherid.com/rid/J-1610-2012>

GOOGLE SCHOLAR URL : http://scholar.google.com/citations?user=_fdZrX8AAAAJ

ORCID: orcid.org/0000-0002-2598-2659

SCOPUS: Author ID: 7003406205, <http://www.scopus.com/inward/authorDetails.url?authorID=7003406205&partnerID=MN8TOARS>

Teaching

- Tenure: two-semester "Laboratorio di Fisica Nucleare e Subnucleare" Master graduate course in Physics, since October 2013 – September 2017. Dipartimento di Fisica, Sapienza Università di Roma
- Tenure: "Elettronica Generale" one-semester Bachelor course in Physics. Academic Year 2013-14. Dipartimento di Fisica, Sapienza Università di Roma
- Tenure: "Elettronica Generale" one-semester Master course in Physics, academic years 2011-12, 2012-13. Dipartimento di Fisica, Sapienza Università di Roma.
- Master course "Progettazione di ASICs", Padua University, from Academic year 2005-2006 and 2006-2007.
- "Laboratorio di Fisica Nucleare e Subnucleare", (Professore a contratto) Corso di Laurea in Fisica, Università La Sapienza, Roma, from January 1999 to March 2000.
- Academic years 1999-2000, 2000-2001, 2001-2002, 2002-2003, 2003-2004, 2004-2005 (Teaching Assistant), Esercitazioni di laboratorio del corso di 'Laboratorio di Fisica Nucleare e Subnucleare'. Corso di laurea in Fisica, Università la Sapienza, Roma.
- Academic years 1992-1993, 1993-1994, 1994-1995, 1995-1996, 1996-1997 (Teaching Assistant), Esercitazioni di laboratorio del corso di Sperimentazione di Fisica III. Corso di laurea in Fisica, Università la Sapienza, Roma.

I am Thesis Advisor for PHD and Master theses in Physics at Dipartimento di Fisica, Sapienza Università, Rome.