

Michele Arneodo

Curriculum vitae

EDUCATION

- Degree (laurea) in Physics, University of Turin (Italy), cum laude and honours (1982)
- MA in Physics, Princeton University, Princeton, NJ, USA (1985)
- PhD in Physics, Princeton University, Princeton, NJ, USA (1992)

UNIVERSITY CAREER

2002-	Full professor, Università del Piemonte Orientale
1998-2002	Associate Professor, Università del Piemonte Orientale
1995-1998	Associate Professor, University of Turin, II Faculty of Medicine, Novara
1992-1995	Associate Professor, University of Calabria
1985-1992	Staff researcher at the Istituto Nazionale di Fisica Nucleare, Turin

UNIVERSITY POSITIONS

2015-2016	Director of the Master course “Environmental management of decommissioning and radioactive waste handling in health care, industry and research”, Università del Piemonte Orientale
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SCIENTIFIC POSITIONS

2014-	Institution Board Chair of the project “CMS-TOTEM Precision Proton Spectrometer” (CERN)
2012-	Publication Committee member, CMS experiment (CERN)
2009-2012	Convener of the “Diffraction” physics group, CMS experiment (CERN)
1996-1997 1999-2001 2005-2007	Convener “Diffraction and Vector Mesons” physics group, ZEUS experiment (DESY)
1998-2000	In charge of operation of the “Leading Proton Spectrometer”, ZEUS experiment (DESY)
1998-2014	Coordinator of the ZEUS Novara-Turin group

MAIN FIELDS OF INTEREST

My field of research is experimental particle physics. I work at CERN, the European laboratory for particle physics near Geneva (Switzerland), and worked in the past at the Deutsches Elektronen-Synchrotron (DESY) in Hamburg (Germany). More in detail:

1. Deep inelastic scattering of muons and electrons on free and bound nucleons: NA2, NA9 and NA28 experiments (European Muon Collaboration, CERN), NA37 experiment (New Muon Collaboration, CERN), ZEUS experiment (DESY)
2. Proton-proton collisions at the LHC collider, CMS experiment, CERN
3. Proton-proton collisions at the LHC collider with detection of the scattered protons: FP420, HPS e CMS-TOTEM Precision Proton Spectrometer projects

CURRENT ISSUES OF RESEARCH

1. CMS-TOTEM Precision Proton Spectrometer (at LHC collider, CERN)

Construction and commissioning of a spectrometer to measure proton-proton collisions in which the protons emerge intact at small angles and high momenta. The scattered protons are detected inside the LHC vacuum beam-pipe at a distance of about 200m from the interaction point. The study of “central exclusive” events of this type may give access to possible deviations from the “Standard Model” via the so-called “anomalous quartic gauge couplings”, and allows the investigation of the proton structure and the strong nuclear interaction in conditions so far unexplored.

2. Analysis of the data jointly collected by the CMS and TOTEM experiments (at LHC collider, CERN)

This is a sample of events with proton-proton collisions for which the data on the secondary particles produced at large angles and those on the scattered protons at small angles are simultaneously available – for the first time at a centre-of-mass energy of 13 TeV.

CURRENT FUNDED PROJECTS

PROGRAMME	FUNDED PROJECT
Istituto Nazionale di Fisica Nucleare	CMS PROJECT

TOP FIVE PAPERS

1. NMC Collaboration, Precision measurement of the structure function ratios $F_2(\text{He}) / F_2(\text{D})$, $F_2(\text{C}) / F_2(\text{D})$ and $F_2(\text{Ca}) / F_2(\text{D})$, Z.Phys. C51 (1991) 387-394, DOI: 10.1007/BF01548560
2. M. Arneodo, Nuclear effects in structure functions, Phys. Rep. 240 (1994) 301-393, DOI: 10.1016/0370-1573(94)90048-5

3. ZEUS Collaboration, Study of elastic ρ^0 photoproduction at HERA using the ZEUS leading proton spectrometer, *Z.Phys.* C73 (1997) 253-268, DOI: 10.1007/s002880050314
4. ZEUS Collaboration, Dissociation of virtual photons in events with a leading proton at HERA, *Eur.Phys.J.* C38 (2004) 43-67, DOI: 10.1140/epjc/s2004-02047-4
5. CMS Collaboration, Observation of a diffractive contribution to dijet production in proton-proton collisions at $\sqrt{s}=7$ TeV, *Phys.Rev.* D87 (2013) no.1, 012006, DOI: 10.1103/PhysRevD.87.012006

AWARDS

1. Fulbright Fellowship awarded to attend graduate courses in the USA (1982-85)
2. Alexander von Humboldt fellowship (Bonn, Germania) awarded to conduct research at the Deutsches Elektronen Synchrotron (DESY) in Hamburg, Germany (1996-1999)