

Marta Ruspa

Curriculum vitae

EDUCATION

- High school diploma (maturità scientifica), Liceo G. Baldessano di Carmagnola (1991)
- Diploma in Journalism, Istituto della Comunicazione, Giornalismo e Pubbliche Relazioni, Torino (1993)
- Degree (laurea) in Physics, Università di Torino, Unicum laude and honours (1996)
- PhD in Physics, Università di Torino (2000)
- School in subnuclear and nuclear physics and astrophysics, Università di Torino (2001)

UNIVERSITY CAREER

2016-	Associate Professor, Università del Piemonte Orientale
2005-2016	Researcher, Università del Piemonte Orientale
2003-2005	Post-doc fellowship, Università del Piemonte Orientale
2001-2003	Post-doc fellowship, Università di Torino

UNIVERSITY POSITIONS

2013-2016	Member of Giunta of the Health Science Department, Università del Piemonte Orientale
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SCIENTIFIC POSITIONS

2015-	Convener of the physics groups “Diffractive and Exclusive processes” and “CMS-TOTEM Combined Analysis Discussion” within the CMS experiment (LHC collider, CERN, Ginevra)
2009-2010	Within the CMS experiment (LHC collider, CERN, Ginevra) in charge of the project “High Precision Spectrometer” (HPS)
2008-2012	In charge of the combination of the results in the diffractive channels from the ZEUS and H1 experiments at the HERA collider
2005-2009	Convenor of the physics group “Diffraction and Vector Mesons” of the ZEUS experiment (HERA collider, DESY, Hamburg)
2002-2004	Web master of the site dedicated to the CMS experiment within the internet page of the Torino section of Istituto Nazionale di Fisica Nucleare (INFN)
2001-2004	In charge of the development, test and installation of the power supplies of the <i>front end</i> electronics of the “Micro Vertex Detector” (MVD) of the ZEUS experiment (HERA collider, DESY, Hamburg)
1998-2000	In charge of operation of the “Leading Proton Spectrometer” (LPS) of the ZEUS experiment (HERA collider, DESY, Hamburg)

MAIN FIELDS OF INTEREST

My field of research is experimental particle physics. I work for an experimental collaboration based 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 specifically:

1. Deep inelastic scattering of electrons on protons at the collider HERA (DESY, Hamburg)
2. Proton-proton collisions at the LHC collider
3. Proton-proton collisions at the LHC collider with detection of the scattered protons: FP420, HPS e CT-PPS 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 by a dedicated detector, the "Precision Proton Spectrometer" (PPS) at a distance of about 200m from the interaction point. The study of "central exclusive" events of this type gives access to possible deviations from the "Standard Model" as well as to 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. Using jointly the CMS and TOTEM data allows a wide-range coverage in kinematics, unprecedented at a hadron collider

CURRENT FUNDED PROJECTS

PROGRAMME	FUNDED PROJECT
Istituto Nazionale di Fisica Nucleare	CMS PROJECT

TOP FIVE PAPERS

1. ZEUS Collaboration, The design and performance of the ZEUS Micro Vertex detector, NIM A 581 (2007) 656
2. ZEUS Collaboration, Deep Inelastic Scattering with Leading Protons or Large Rapidity Gaps at HERA, Nucl. Phys. B 816 (2009) 1

3. M. Albrow et al., The FP420 R&D project: Higgs and New Physics with forward protons at the LHC, JINST 4:T10001 (2009)
4. ZEUS Collaboration, A QCD analysis of ZEUS diffractive data, Nucl. Phys. B 831 (2010) 1
5. CMS and TOTEM Collaborations, Measurement of the pseudorapidity distribution of charged particles in proton-proton collisions at $\sqrt{s}=8$ TeV by the CMS and TOTEM experiments, Eur. Phys. J. C 74 (2014) 3053