

Marco Circella

Contact information

INFN – Sezione di Bari
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Main interests

Astroparticle physics, management of scientific projects, communication and outreach, teaching

Education and training

April 1999 – Dec. 2001: post-doctoral fellowship of University of Bari

March 1997 – March 1999: post-doctoral fellowship of Istituto Nazionale di Fisica Nucleare (INFN)

Feb. 1997: Ph.D. diploma awarded by the University of Bari. Subject of the dissertation: Measurements of the flux and charge ratio of cosmic ray muons in the atmosphere

1994 - 1996: graduate student in Physics at University of Bari

1993: Fellowship at the Particle Astrophysics Laboratory of New Mexico State University, Las Cruces, New Mexico (USA)

Dec. 1992: Diploma di Perfezionamento in Fisica, University of Bologna (Italy)

Oct. 1986 – Dec. 1991: Master's degree in Physics; University of Bari. Final mark: 110/110 cum laude.

Subject of the thesis: Cosmic ray measurements in the atmosphere

Awards

1997 - Diploma di Operosità Scientifica della Società Italiana di Fisica

Employment

Since 2001: researcher at INFN Sezione di Bari, Italy

Scientific activity

My main research interests concern astroparticle physics, with emphasis on search of rare components. Consequently, I have worked in challenging experiments carried out in upper atmosphere or in deep sea.

Since 2001: neutrino-astronomy with the ANTARES, NEMO and KM3NeT Collaborations. The goal is to equip large volumes of water in the deep sea with arrays of photomultipliers so as to detect the Cherenkov signals due to neutrino-induced particles.

1991 – 2005: primary cosmic ray measurements with the WiZard Collaboration. I have participated in the balloon-borne experiments MASS (1992), TRAMP-SI (1993), CAPRICE (1994 and 1998), which exploited a superconducting magnet spectrometer, as well as in the space-born mission NINA and in the preparation of the PAMELA apparatus.

My main contributions include:

- participation in the preparation of various prototyping campaigns of ANTARES, NEMO and KM3NeT;
- supervision of design and production of various mechanical and electronics components for ANTARES and KM3NeT;
- laboratory tests;
- construction of the electronics modules of ANTARES;
- timing calibration system of NEMO;
- coordination of the maintenance of ANTARES (with three out of the 12 detection lines of the apparatus recovered and reinstalled after upgrade, plus a rearrangements of the undersea cabling of the detector, comprising a dozen sea campaigns in total);
- development, in collaboration with a local team in Bari, of the Transition Radiation Detector (TRD) for the apparatus TRAMP-SI;
- development of a full-package simulation code for our balloon-borne detectors;
- beam tests at CERN and PSI;
- various original contributions to the analysis of the data collected from the balloon-borne experiments, among which the investigation of the flux of cosmic ray muons in the atmosphere;
- development of a prototype TRD for space experiments.

Main services

2013-2014: Technical Project Manager of the KM3NeT Collaboration (recently confirmed for next term, 2015-2016).

2008-2014: Technical Coordinator of the ANTARES Collaboration.

Since 2005: team leader of the neutrino-telescope teams (ANTARES, NEMO, KM3NeT) at Sezione INFN of Bari.

Since 2004: member of the Publication Committee of the NEMO Collaboration (now Publication and Conference Committee of KM3NeT-IT)

2003-2008: member of the Steering Committee of the ANTARES Collaboration, as coordinator of the construction of the electronics modules of the apparatus

2003-2012: member of the Technical Board of the NEMO Collaboration, as coordinator of the subproject of time calibration

Teaching and mentoring

2007-2013: courses on Astroparticle Physics delivered to graduate students in Physics of the University of Bari

Since 2011: member of the organizing committee of the Italian National School of Nuclear and Subnuclear Physics for graduate students, based in Otranto. Also lecturer at the school in 2012

2001-2010: various courses delivered on Fundamental Physics to undergraduate students in Mechanical and Electrical Engineering of Polytechnic University of Bari; assistant professor in courses on Electronic

Calculators, Advanced Programming and Nuclear and Subnuclear Astrophysics delivered to undergraduate students in Physics of University of Bari

Mentor of 10 undergraduate students at University and Polytechnic University of Bari, two graduate students at University and Polytechnic University of Bari and various trainees of INFN Bari

Communication and outreach

Participation in the organization of various events, among which:

- 50th Anniversary of the foundation of Department of Physics of Bari, 9 October 2013
- Researcher's Night 2007, Bari, 28 September 2007
- Albert Einstein – Designer of the Universe, exhibition celebrating the World Year of Physics 2005, Bari, 4-30 November 2005
- Archimed, exposition of innovative technologies, Bari, 23-26 February 2000
- Tecnorama, exposition of information and communication technologies, Bari, 15-18 April 1999

Lecturer at the School of Astronomy of the SAIT (Società Astronomica Italiana – Italian Astronomical Society) since 2010

Publications, conferences

Author of 156 papers in refereed journals. Contributed more than 30 presentations at international conferences. Among organizers of various events (e.g., 3rd and 4th Very Large Volume Neutrino Telescope workshops, Athens 2009/Erlangen 2011; XCV National Congress of the Italian Physical Society, Bari, 2009).