

Short Curriculum Vitae

Marco Ricci

Marco Ricci is Senior Researcher at the Laboratories of Frascati (Rome) of the National Institute of Nuclear Physics (INFN).

He received his degree in Physics at the University of Rome "La Sapienza" with a thesis in Experimental Particle Physics.

His main activity and scientific interests are related to space researches conducted with techniques and instrumentation used in elementary particle physics.

Since 1985, this activity has been carried out in the field of Astroparticle Physics with experiments on board Stratospheric Balloons, small and large size Satellites, MIR Space Station and International Space Station. It has mainly concerned the study of the electronic, nuclear and isotopic component of the cosmic rays, with special regard to the search for antimatter and signals of dark matter, the study of the radiation environment within the MIR and ISS Space Stations and the study of the effects of the ionizing radiation on the central nervous system of astronauts in space.

It started with stratospheric balloon campaigns in USA and Canada, dedicated to the detection of antiprotons, positrons, electrons, protons and light nuclei at the top of atmosphere. These campaigns have been conducted in the frame of an International Collaboration including the NASA GSFC, American, Swedish and German Universities, the Italian Space Agency (ASI) and six INFN Sections and Laboratories, under the acronyms MASS and WIZARD (MASS-1 and 2, TS93, WIZARD/CAPRICE 94, WIZARD/CAPRICE 97-98).

They were followed and extended, in the frame of an international agreement on scientific space programs (RIM, Russian Italian Missions) between INFN, ASI and the Russian Space Agency and Russian, German and Swedish Universities and Institutions, by the space experiments Si-Eye 1 and 2 (1995, 1998) on board the MIR Space Station, NINA-1 (1998), NINA-2/MITA (2000) on board russian and italian satellites, Si-Eye 3 (2002) on board the International Space Station and, finally, by the mission PAMELA – launched in June 2006 from Baikonur (Kazakhstan) on board a Russian satellite Resurs DK-1 – dedicated to the extensive search of antimatter and dark matter signals in the cosmic radiation.

Currently, PAMELA daily sends some 16 Gigabytes of data to ground. Of remarkable scientific importance are the results obtained on the antiproton-proton ratio – published in Physical Review Letters - and those on the positron-electron ratio – published in Nature – which have produced a great interest also outside the scientific community of reference. The positron data are interpreted by many theorists as dark matter signals, even if other hypotheses are being considered.

The activities of Marco Ricci, in chronological order, are briefly reviewed as follows:

1985-1986 Post-doc Fellow at CERN (Geneva, Switzerland) in Experimental Physics.

1986-1988 Researcher (post-doc temporary position) at INFN Frascati Laboratories.

1989 Research staff (permanent position) at INFN Frascati Laboratories.

1986-1993 Co-proponent of INFN Astroparticle research activities in space.

Participation and detector (calorimeters) responsibility in astrophysics and cosmic ray physics experiments on board stratospheric balloons during NASA launch campaigns from USA (New Mexico) and Canada (experiments MASS1, MASS2, MASS92 and TS93).

1994-1998 Responsible for the INFN group in the balloon experiments CAPRICE94, CAPRICE97 and CAPRICE98, upgrades and evolution of the previous ones with advanced technologies in particle detectors and associated systems (electronics, data acquisition) suited for measurements performed at the top of the atmosphere.

1996-present Responsible for the INFN Frascati group in the WIZARD satellite experiments NINA, NINA2/MITA and PAMELA.

Responsible for the INFN Frascati group of the multi-disciplinary experiments Si-Eye, SI-RAD, ALTCRISS on board MIR and ISS Space Stations dedicated to the research on the “light flashes” effect on astronauts and to environmental studies (radiation) in space.

Responsible for the INFN Frascati group of the R&D on silicon sensors (Si-PM) for the development of detector and trigger systems for space experiments.

2002 Senior Researcher at INFN Frascati Laboratories.

2002-2007 Scientific Coordinator for INFN Frascati Astroparticle activities in the INFN National Scientific Committee for Astroparticle, Neutrino and Gravitational Wave Physics (CSN II) (until April 2007).

Member of the INFN Frascati Laboratory Council (until April 2007).

Responsible of the subsystem MGSE (Mechanical Ground Support Equipment) for the PAMELA satellite experiment.

Team Leader for the PAMELA experiment for the beam test and calibration activities at CERN, Geneva.

Member of the PAMELA International Scientific Committee and of the PAMELA International Executive Committee.

Marco Ricci is author of about 150 papers published in the major international journals and reviews.