

February 2011

Luigi (Gigi) Rolandi
Senior Research Physicist
CERN
Geneva, Switzerland



Born in Naples, Italy
12 February 1953

Academic Positions

Professor (contratto)	Scuola Normale Superiore	2008-present
Senior Research Physicist	CERN	1991-present
Associate Professor	University of Trieste, Italy	1985-1994
Assistant Professor	University of Trieste, Italy	1978-1985

Education

Perfezionamento (PhD)	Scuola Normale Superiore, Pisa, Italy	1975-1978
Laurea (Master)	Università di Pisa & SNS, Pisa, Italy	1970-1975

HEP Experiments

CMS (Tracker Project Manager, Chair Pub. Comm, Phys Coord.)	1998-present
ALEPH (Physics Coordinator 89-94, Spokesperson 94-97)	1982-2000
NA1-NA7	1975-1984

Editorial Boards

Scientific Adviser for Experimental Physics of JHEP	2009-present
Editor of The Journal of High Energy Physics (JHEP)	1998-present
Editor of Physics Letters B (PLB)	2001-present

HEP Committees and Panels

<i>EUDET (Detector R&D towards the International Linear Collider)</i> Chair of International Advisory Committee	2005-2009
<i>DESY Physics Research Committee</i> Chair	2001-2004
Member	1998-2001
<i>European Committee for Future Accelerators (ECFA)</i> Member of ECFA and Restricted ECFA	2002-2004
<i>Evaluation Committee of the Norwegian Research Council</i> Member	2000-2000
<i>UK Particle Physics Experiments Selection Panel</i> Member	1998-2000
<i>LHC Experiments Committee at CERN</i> Member and principal referee of the ALICE experiment	1996-2000
<i>SLAC Experimental Program Advisory Committee</i> Member	1993-1997
<i>LEP Experiments Committee at CERN</i> Member, representing the ALEPH Collaboration	1988-1994
<i>INFN Commissione Scientifica Nazionale 1</i> Scientific Secretary	1987-1991
Member	1985-1987

CERN Committees and Panels

<i>Scientific Information Policy Board (SIPB)</i> Chair	2006-present
<i>Physics Opportunities for Future Proton Accelerators (POFPA)</i> Member	2005-present
<i>Senior Staff Advisory Committee to the Director General (The NINE)</i> Member and Chair	1997-2000

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Biographical information

Gigi Rolandi

Gigi Rolandi is a member of the Compact Muon Solenoid (CMS) Collaboration and a Senior Research Physicist at the European Laboratory for Particle Physics (CERN), where he has conducted research since 1975. Since 2008 he is teaches Experimental high Energy Physics at Scuola Normale Superiore in Pisa.

Dr. Rolandi studied physics and experimental high energy physics at the exclusive Scuola Normale Superiore in Pisa, Italy. Under his thesis advisor, Lorenzo Foà, he participated in the R&D, construction and commissioning of the drift chambers and the Cherenkov detectors of the NA1 experiment, installed in the H4 beam line of the CERN SPS, and later in the analyses for the determination of charmed hadrons lifetimes, using for the first time an active silicon target.

At the age of 25, Dr. Rolandi was offered an assistant professorship at the University of Trieste and started a new HEP group that participated in the NA1 and NA7 Collaborations. In the NA7 experiment, he contributed to the design and analysis of the measurement of the pion electromagnetic form-factor at threshold in the time-like region. This experiment was based on producing pion pairs with a positron beam on a hydrogen target; it is, to date, the most precise measurement of the pion form factor in that energy range.

In the early 80's CERN was expected to build an electron-positron collider energetic enough to produce the as yet undiscovered Z boson. Dr. Rolandi contributed to the international effort to design a sophisticated and effective apparatus (ALEPH) for the precision study of the properties of the electroweak interaction. The ALEPH Collaboration had chosen, for the central tracker, the new TPC technology, even though the only previous attempt – the PEP4 TPC – was experiencing great difficulties because of drift distortions. Gigi Rolandi, together with Francesco Ragusa, studied the resolution error associated with the drift of the ionization electrons in the electric and magnetic fields, as well as the error associated with the production of the signals on the pads of the wire-chamber planes. The most significant result of this study was the understanding of the importance of the magnetic field as stabilizer of the ionization electrons' drift paths. This and other studies on the ALEPH TPC are collected in *Particle Detection with Drift Chambers*, written by Gigi Rolandi together with Walter Blum, a book which became a reference for builders of gas-based particle detectors.

In 1989, with the LEP start-up drawing near, Gigi Rolandi was asked by Jack Steinberger, ALEPH spokesperson and founder, to steer and stimulate the evolution of the Collaboration from a “subdetectors' community” to a running experiment. The traditional “Gigi” Tuesday meetings that he started in 1989 and chaired for five years marked the ALEPH Collaboration: they were the forum where the readiness and the experimental programme and later all conference contributions and papers, were discussed and approved.

Precision electroweak physics was the most intense physics topic in the early 90's. Dr. Rolandi made central contributions to the ALEPH analyses on the measurements of the Z boson properties and the determination of the number of neutrino families. From 1992 to 1994 Rolandi chaired the LEP Energy Calibration Working Group, which provided the first precise energy calibration of LEP, allowing a measurement of the Z boson mass with a precision of 1.4 MeV.

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In 1994 Dr. Rolandi was elected spokesperson of the ALEPH Collaboration. In this role, he managed the transition to the high-energy period of LEP, starting with 130 and 136 GeV runs in November 1995. ALEPH was a very successful experiment, which produced more than 250 high-quality papers. Dr. Rolandi made major contributions to this scientific production directly and in his capacity as a member of the ALEPH editorial board, from 1991 to the present, and as its chairperson from 1997 to 2000.

In 1997 – at the end of his term as ALEPH spokesperson – Rolandi declined the offer to stand for a second term and joined the CMS Collaboration, which was constructing a large and challenging detector for experimentation at the new high-energy frontier: the CERN Large Hadron Collider.

In 1998 Dr. Rolandi joined the CMS Tracker Project. He reorganized its managerial structure by introducing the Tracker Steering Committee as the top decision-making body. In 1999 he played a major role in the decision to change the baseline design into an “all-silicon” tracker. In 2000 Rolandi became Project Manager and restructured the CMS Tracker project in order to face the task of building a detector with an unprecedented number of silicon sensors in five years. In the following years, the facilities for building and testing 16,000 silicon modules were put in place at more than 20 sites world-wide.

Since 2005 Dr. Rolandi has engaged in the preparation of Physics analyses in CMS. He designed the approval process for physics analyses that was subsequently adopted by the Collaboration. He designed the management tools to steer the many analyses that are active in CMS at the same time and the Collaboration Wide Review of CMS papers.

From 2006 to 2009 he was the Chair of the CMS Publication Committee and chair of many Analyses Review Committee. As CMS Editor he was responsible for the publication of all scientific notes and papers of the Collaboration and published the 23 papers on the CMS detector performance with Cosmic Rays, the first large set of papers produced by the CMS collaboration as a whole.

Since January 2010 he is the Physics Coordinator of the CMS experiment, He added the Physics Office to the managerial structure of the project. He proposed the Physics Plan adopted for the 2010 run that is producing a large number of high quality papers.

Dr. Rolandi is member of the Editorial Board of two of the most prestigious journals of HEP: Physics Letters B and The Journal of High Energy Physics. Since 2009 he is the Scientific Adviser to the Director of JHEP for Experimental Physics.

Dr. Rolandi served as member of numerous HEP Committees including LEPC at CERN, EPAC at SLAC, LHCC at CERN, PPESP in the UK, and RECFA. From 2001 to 2004, Dr. Rolandi was the chairperson of the DESY Physics Research Committee. Dr. Rolandi was member of the advisory or review committees of many high energy institutes including LIP in Portugal and HEPHY in Austria.

Since 2007 Dr. Rolandi teaches Experimental Particle Physics at Scuola Normale Superiore in Pisa.

Dr. Rolandi is author of some 400 publications on refereed journals; a selected list is available at

<http://cern.ch/rolandi/publications.html>