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Education and Research

Born on May 19, 1958. *Laurea* in physics with honors at the University of Torino, Nov. 1980 (advisors: C. Franzinetti and R. Cester).

Graduate studies at Princeton University, NJ, USA, in 1980–1984. Member of the experiment FNAL-E615, with A.J.S. Smith and K.T. McDonald, dedicated the study of muon pairs produced in hadron interactions. The results were presented at the APS/DPF annual meeting, Santa Fé, Nov. 1984, and at a seminar at CERN, Dec. 1984. The *Ph.D.* degree was granted in Jan. 1985.

From 1985 he was at INFN-Torino, with a permanent research position. Member of FNAL E-760, with R. Cester. He was responsible for the design, construction and operation of the innermost tracking detector (a *straw-chamber*). He contributed to the development of experimental techniques (*double-scan*), to physics analyses of narrow resonances, and to the search for the $h_c(1P)$ state. He presented techniques and results at various conferences, including the EPS-1991, Geneva.

From 1988 to 1991 he contributed to the proposal CERN-SPS-P238. This was the original proposal for the study of *B*-physics at hadron colliders with a forward spectrometer. He was coordinator of the three participating Italian institutes, active on the possibility of studying B_s oscillations. The proposal did not meet the programme of the laboratory, but developed into a relevant and successful R&D test of silicon detectors installed in a Roman Pot, with the sensors normal and very close to the beam line in the LSS5 interaction region.

From 1991 to 2000 he was member of the NA48 project, dedicated the study of CP violation in the decays of neutral kaons to pion pairs. He was active in all phases of the programme, in particular in the Liquid Krypton calorimeter project. He contributed directly to the development of prototypes, and to the successful design of a detector with ribbon electrodes in a pointing, accordion-like geometry.

He was responsible for the design and procurement of the electrode support-structure (at INFN-Torino), and of the assembly of the electrode structure, which took place at CERN with personnel from INFN, Saclay and Dubna.

He had direct responsibilities in the operation of the calorimeter, and coordinated a major intervention on the HV distribution, in 1997–1998.

He completed the first extensive study of space charge effects in a calorimeter used in HEP experiments. He was NA48 Run Coordinator in first physics run (1997), and coordinator of the studies of systematic effects for the first analysis of CP-violation.

He was co-editor (with G. Unal) of the first paper with CP violation results (currently 542 citations in

INSPIRE). He presented the first NA48 results on CP violation at one of the first two major conferences (EPS Conference, Tampere, 1999), and in seminars in Torino, Genova, Princeton, Corfu Summer Institute 2001.

Member of ATLAS since Oct. 1999, as member of the CERN team.

He was coordinator in 2000–2003 of the test and validation programme of the precision chambers (the MDT system) of the Muon spectrometer. In particular, he coordinated the design and the large installations for the Muon validation program that took place in the H8 experimental area.

He contributed to the End Cap alignment system, in the design, assembly and test of prototypes of the *alignment bars*.

He coordinated a long and detailed ageing test on MDT chambers performed in the gamma irradiation facility (GIF).

In collaboration with a technical unit of CERN-PH, he was responsible for the design and the validation procedure for materials and components for the MDT gas system, the largest gas-recirculation system built for an experiment at CERN.

From 2003 to 2008 he was Integration Coordinator for the Muon End-Cap Spectrometer (e.g., G. Mikenberg and S. Palestini, *ATLAS: where big wheels are really big*, CERN Courier, May 2008). His main responsibility was the on-surface assembly and the final tests of the sectors of the Muon *Big Wheels*, prior to installation in ATLAS. This task required the coordination of work performed by members of the ATLAS Design Office, by scientific and technical teams from collaborating institutions from Israel, Japan, US, Russia, and by technical teams from Pakistan.

He was also responsible for the procurement of the mechanical structures of the TGC wheels (trigger chamber) and of tooling for assembly, handling and transport of the sectors.

The assembly, integration and test of the sectors of the Big Wheels, 104 sectors in total, took place over 30 months. The high quality of the assembly and validation procedure was essential for the rapidity of the installation and commissioning of the detector in the ATLAS cavern.

He was Muon Deputy Project Leader and member of the ATLAS Executive Board in 2005–2008, and chair of the Muon Institute Board in 2008–2010.

Within the CERN ATLAS team, he was leader of the CERN ATLAS Muon Section in 2008–2011. The section had responsibilities in the areas of logistics and infrastructures, detector control system and detector simulation. His tasks included the supervision of students and fellows involved in performance and physics studies (trigger and tracking efficiency for muons and muon pairs, mass/vertex/decay time fits).

He was been Group Leader of the CERN ATLAS Detector Group (ADE) in 2010–2013. After detector commissioning, the activities of the ADE group have turned towards detector upgrade. The ADE group has played an important role in the development and procurement of the additional inner layer of the ATLAS Pixel Detector (IBL) and in the deployment of the new electric read-out for the Pixel Detector (nSQP). Both items have been installed in during the LHC shutdown in 2013–2014.

The group has also played a central role in the R&D activity on *micromegas* chambers, in view of the upgrade of the Muon *Small Wheels*, scheduled for the next shutdown of LHC. This programme has achieved several relevant advances in the detector design and performance, including the development of a design for spark-protection, the use of non-flammable gas mixtures, the read-out as a micro *time-projection* chamber, and the construction of large-size detectors. This detector technology has been chosen as main tracking device for the upgraded *Small Wheels*.

He has been chairperson of several ATLAS editorial boards. He has been member of the ATLAS Physics Coordination and convener of ATLAS B-physics studies in 2011–2013.

He has been member of the *International Detector Advisory Committee* (IDAG) of the *International Linear Collider Organization* (ILC) in 2008–2013. Over the years, the tasks performed by IDAG included the selection of the Letter of Intent for the ILC experimental programme, and the review and advisory role

for the preparation of the physics and detector chapters of the ILC Technical Design Report. Within the committee, he has often acted as main referee for the SiD Collaboration.

He is member of the international advisory committee for the conferences series *Beauty at Hadron Machines / Beauty at Frontier Machines*, since 2012.

In 2013 he has been awarded a grant from the Italian Ministry of Research and University for delivering a course on Elementary Particles Physics at the University of Salento, Lecce, in the framework of the programme *Messaggeri della Conoscenza*. The grant included the support of four selected students for a stay at CERN, in summer 2014

In 2014–2015 he has lead the task force formed for the study of the rare decays of B_s^0 into muon pairs. The accuracy achieved is the same as the one obtained by LHCb and CMS, despite the worse mass resolution of the ATLAS detector. He has presented the results at the Moriond EW 2016 conference. He has been member of the ATLAS Physics Coordination and convener of the ATLAS B-physics/Light-States studies for a second term in 2015–2017.

Since 2015 he is member of the *Physics and Detector Advisory Group* (PDAP) of the *Linear Collider Collaboration*.

He is member of the Program Committee of the CKM 2018 workshop, U. Heidelberg.

In 2018, he has joined the CERN EP Neutrino Group, taking the role of Deputy Group leader. The activities of the group include the Fermilab Short-Baseline and Long-Baseline (DUNE) programmes.

In 2014, he was awarded the qualification for a full professorship in the Italian university (*Abilitazione Scientifica Nazionale, Prima Fascia, settore 02/A1, 2014–2020*).

Employment and functions

Ricercatore at INFN, Torino, 1984–1993.

Primo Ricercatore at INFN, Torino, 1993–2001.

Scientific Associate at CERN, 1993–1995.

Staff Scientist at CERN - EP (LD-Research), 1996–1999.

FixedTerm/Permanent Staff Member at CERN, PH/EP Dept., ATLAS Team, since 1999.

CERN-EP ATLAS Muon Deputy Group Leader, 2001–2007.

CERN Senior Scientist since 2003.

CERN-PH ATLAS Muon Section Leader, 2008–2009.

Docente titolare del Progetto didattico ID 511, at the University of Salento, Lecce, in 2014, in the framework of the *Programma Messaggeri della Conoscenza*, Italian Ministry of University and Research.

CERN-PH ATLAS Detector Group Leader, 2010–2013.

CERN-EP Neutrino Deputy Group Leader, 2018.

Membership in committees

INFN-Torino *Consiglio di Sezione* and INFN *Assemblea Rappresentanti dei Ricercatori*, member, 1987–1991.

INFN *Gruppo-1* Scientific Committee, referee for the *BaBar* project, in 1998–2000.

ATLAS Executive Board, Scientific Secretary in 2001–2004.
ATLAS Executive Board, Additional Muon Representative, in 2005–2008.
ATLAS Muon Institute Board, chair, 2008–2010.
ATLAS Physics Coordination, member, and ATLAS B-phys. Group, convener, 2011–2013.
ILC *International Detector Advisory Group*, member, 2008–2013.
International Committee for the conference series *Beauty at Hadron Machines / Beauty at Frontier Machines*, member, since 2012.
Reviewer for STFC of the funding applications of four UK institutions active in HEP, in 2015.
ATLAS Physics Coordination, member, and ATLAS B-phys./Light States Group, convener, 2015–2017.
LCC *Physics and Detector Advisory Panel*, member, since 2015.
CKM 2018 Workshop, member of the Program Committee
Chair of Editorial Boards of the ATLAS Collaboration since 2011.
Member of selection boards for staff positions at CERN.
Member of technical review boards for the ATLAS and CMS projects.
Referee for scientific journals: Eur. Phys. J. C, IEEE Trans. Nucl. Sci., JHEP, Nucl. Instrum. Meth. A, Phys. Lett. B.