CV - Tommaso Tabarelli de Fatis (Trento, 7 marzo 1964)

Full professor (since 2016) in experimental physics at the University of Milan Bicocca, former associate professor (2005-16), he was senior researcher (2002-05) and researcher at the National Institute of Nuclear Physics (1995-2002) and post-doc fellow (1993-95), after obtaining his PhD in Physics (University of Milan, 1993). He graduated in 1988 cum laude. He was lieutenant of artillery in the Italian Army (1988-89). He is (co-)author of numerous publications in experimental physics of elementary particles that cover design, operation and data analysis of LHC and LEP collider experiments, neutrino physics, fixed target experiments and detection techniques. He has an h-index of 157 and 27 papers with more than 500 citations (June 2020).

Since 2003 he has been actively involved in the CMS experiment at LHC, where he participated in the construction and commissioning of the electromagnetic calorimeter (ECAL). At the start of LHC, he coordinated the ECAL Performance Group (2009-10), responsible for the commissioning and calibration of ECAL and the optimization of the reconstruction of electromagnetic swarms, and was ECAL project leader and member of the CMS Management Board (2011-12), contributing to the scientific success of the experiment, culminating in the discovery of the Higgs boson. He contributed to the characterization of the Higgs boson in different production and decay channels, with a decisive role in the first precision measurement of its mass in the two-photon decay. He declined the offer of a second mandate as ECAL project manager. Since 2013 he coordinated Milano Bicocca's participation in the CMS experiment, leaving in 2017 for other commitments. From 2013 and until the approval of the project (2017), he was the national coordinator of the Italian contribution (INFN) to the maintenance of the ECAL detector and the design of its upgrade for the future high luminosity phase of LHC. In parallel, he led an R&D line on the reconstruction of events with track detectors with precision timing; he proposed, coordinated, and led to the approval the "MIP timing detector" (MTD) for the high luminosity phase of LHC. Since 2017 he has been project leader of the international CMS MTD project, member of the CMS Upgrade Steering Group and CMS Management Board (since 2018).

Before CMS, from 1991 to the end of the LEP collider operation, he was a member of the DELPHI experiment, with responsibility for the calibration of the analogue response of the electromagnetic calorimeter. In DELPHI, he contributed to the characterization of the Z boson, with precision measurements of the decay of the Z boson in quark b pairs, and the measurement of the mass of the W boson. From 1995 to 2002 he participated in several international initiatives for the study of neutrino oscillations: the NA56/SPY experiment, aimed at studying the properties of neutrino beams from hadron decays (design of the experiment, coordination of data analysis and publications); the LAr-TPC project with the first exposure of a liquid argon detector to a neutrino beam (definition of the online and offline trigger system); the MONOLITH experiment on atmospheric neutrinos (coordination of the simulation and reconstruction of events). In his youth he participated with merit in an experiment for the research of double beta decay and the development of a Cherenkov detector for the Babar experiment, on CP-parity violation in B-meson decays.

The scientific coordination experience includes R&D projects of new detectors funded by INFN (PI of IMCP and R2PC) and by the European community under H2020 (FASTER Action MSCA-IF and local coordinator of AIDA2020).

The teaching experience, supported by excellent evaluations, includes laboratory courses (nuclear and subnuclear measurements, electromagnetism and optics, semiconductor devices), general physics courses (mechanics, thermodynamics, special relativity, electromagnetism and optics), particle physics instrumentation courses and medical physics courses. He was vice-coordinator of the PhD course in Physics 2014-19), in 2013-17 he coordinated Milano Bicocca's participation in the CMS experiment, member of the Area Committee in Physical Sciences (2009-11), coordinator of the course in particle physics (2006-09). He has participated in selection committees for PhD, Research Fellowships, and faculty positions. During his activity in CMS, he supervised 7 PhD theses, 12 Master's theses and many three-year theses. He has been invited on numerous occasions as a Doctoral or HDR Committee member. He has carried out and continues to carry out scientific reviews of projects and publications, organisation and moderation of congresses.

He carries out dissemination activities with seminars and with videos published on his Youtube channel.

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