

Research Director of CNRS/IN2P3 at LPNHE/Sorbonne University, and since 2021 at APC/U. Paris Cité
Major field of expertise: Study of the Higgs boson at hadron (Tevatron and LHC) and future colliders (FCC-ee)

Academia

1983: Diplôme d'ingénieur de l'Ecole Nationale Supérieure des Télécommunications (« Grandes Ecoles »)
1983: D.E.A. (Master) de Physique Théorique à l'Université Paris VII.
1985: Thèse de Doctorat de l'Université Paris VII, (neutrino oscillations at CERN / Brookhaven Nat. Lab)
1992: Habilitation à diriger des Recherches, Université Paris VII (QCD in electron-proton interactions at HERA)

Scientific phases

- 1) 1983-1988: Neutrino physics (neutrino decays and oscillations) at CERN (PS191) and BNL (E816)
- 2) 1988-1999: Proton structure functions and QCD on H1 in ep collisions at HERA Phase I.
- 3) 1998-2016: D0 experiment for the Tevatron Run II. Top and Higgs Physics.
- 4) 2014-202x: ATLAS Run II and beyond. Observation of VH and Higgs \rightarrow bb. Search for HH to bb $\gamma\gamma$ production.
- 5) 2018-202x: Future colliders, in particular FCC feasibility study and rECFA French representative

Scientific Leadership (since 2000)

2001-2004: Convener in the D0 expt. of "Jets and missing transverse energy" & "Calorimeter Algorithms" groups
2004-2007: Convener in the D0 expt. of the working group on the "Higgs boson search" (80 physicists).
2005-2009: Coordinator of the Tevatron-New Phenomena-Higgs working group (combined CDF-D0 searches).
2009-2011: Physics coordinator of the D0 experiment (six physics groups with a total of 200 physicists).
2011-2014: Elected (twice) Spokesperson of the D0 experiment (500 physicists).

Research Management (since 2000)

2000-2016 : Direction of the D0-LPNHE-Paris group
2006-2010: Member of the LPNHE-Paris Scientific Council
2008-2011: Project leader of D0-IN2P3 (7 laboratories, 40 physicists)
2015-2019: Director of the LPNHE-Paris Lab (150 physicists, engineers, technicians, on HEP, Astroparticle and Cosmology).
2020-2025: Project leader for the Future Circular Collider (FCC) at IN2P3 (11 Labs, 45 Physicists)

Recent activity

- D0 member since 1999, spokesperson of the experiment 2011-2014
- ATLAS member since 2014, on VH, Higgs to bb analysis and HH search in bb $\gamma\gamma$ final state.
- co-Chair and founding member of the yearly LHCP conference (with about 350 participants), as well as co-Chair and founding member of the yearly Higgs Hunting workshop (with about 120 participants).
- Supervised six theses on Higgs physics since 2012 (two on Dzero, three on ATLAS and one on ATLAS+Future colliders) including one defended in 2019 on the observation of Higgs to bb.
- Co-PI of a IN2P3-Russia (IHEP Protvino) project on Higgs searches at the Tevatron (2011-2014).
- Co-PI of a LPNHE-Paris/SJTU-Shanghai project on the search for double Higgs production (2020-2024).

Misc.

Co-recipient of the EPS HEP prize in 2019 to CDF and D0 for the Top discovery and its precise measurement
Referee for Physics Letters and Phys. Rev. Letters
Member of the Particle Data Group (2008-2013)
Plenary ECFA member (2018-)

Brief description of my activities

As an experimental particle physicist, I have worked at several international labs during my career: CERN, Brookhaven, DESY, Fermilab and CERN again, corresponding to the 5 big phases of my research. From 1983 to 1988 I did my thesis at CERN and my postdoc at Boston University (mostly based at Brookhaven) on neutrino physics, searching for neutrino decays (PS191) and for neutrino oscillations (PS191, E816).

I then got hired at CNRS/IN2P3, based at LPNHE-Paris/Sorbonne, and went soon afterwards to DESY for the start of HERA on the H1 experiment, where I worked on proton structure functions and QCD. We observed for the first time the rise at low x of F_2 . At the end of the HERA Run I, I moved to the Tevatron for the Run 2, in the DZero experiment, co-leading a group of 40 French physicists. My main topic was calorimetry during the preparation phase, then the search for the Higgs boson which culminated with the first evidence for the decay of the Higgs to a pair of b quarks in July 2012, but this was eclipsed by the outstanding ATLAS and CMS discovery.

After finishing my terms of spokesperson of DZero (2011-2014), I became director of the LPNHE-Paris Lab (150 persons, with about 50 faculty, 50 engineers/technicians, and 50 non-permanent personnel), I dedicated myself mostly to research management during those four years, but keeping an activity on H to bb in ATLAS. The LPNHE scientific program contains HEP, Astroparticles and Cosmology projects, and it was an exciting time since we started a new line, on experimental direct search for Dark Matter (XENON and DAMIC projects), but also DESI in cosmology, and the T2K upgrade, towards Hyper-K. We also had the ITK and HGTD ATLAS projects ramping up for HL-LHC, so these were busy times. However the LPNHE implication on long term future projects was weak, so I spurred an effort to support future e^+e^- colliders (including an LPNHE contributed paper to the ESPP) and eventually we created a new research line for FCC-ee at the Lab. At the end of my director mandate (2019), in parallel to my ATLAS activities (now focused on double-Higgs production search), I became fully involved in the realization of the European strategy and got asked to pilot the IN2P3 effort to build the FCC-project in France. As French National contact for FCC, I am also responsible for the FCC Informal Forum of National Contact (IFNC) which is aiming at expanding the collaboration worldwide.

Member of the plenary ECFA since 01/2018, and French representative at the restricted ECFA since 01/2023.

In 2021, we proposed to create with my colleagues Marco Bomben and Giovanni Marchiori a new team devoted to Higgs physics (and related technical developments) at APC, to develop there this scientific axis and benefit from APC's favorable environment on the other aspects of scalar fields (cosmology, theory). This group is now fully active on ATLAS and FCC and in 2023 counts 5 additional students and 2 additional postdocs. Overall, I supervised 15 theses (2/3 men, 1/3 women).