

Patrice VERDIER - Curriculum Vitae



Born May 13th, 1975 in Villeurbanne, France
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Current position: Experimental Physicist at Institut de Physique des 2 Infinis de Lyon
 In January 2021, I have joined the “Gravitational Wave” team of IP2I Lyon to work in the Virgo collaboration and on the Einstein Telescope project.

Research management

2021- IN2P3 Project manager

I am in charge of the coordination of the ongoing exercise to update the French strategy in nuclear, particle and astro-particle physics (<https://prospectives2021.in2p3.fr>). The publication of the roadmap is expected in the Fall of 2022. I also coordinated IN2P3's contribution to updating the 2022 French roadmap for research infrastructures in Nuclear & High Energy Physics.

2019-2020 Deputy director of IN2P3

[IN2P3](#) is the national institute at CNRS, which animates and coordinates French activities in nuclear, particle and astro-particle physics. The institute also contributes to the development of associated technologies and applications, especially for medical and energy applications. The direction of IN2P3 operates 25 laboratories, which comprises 3200 staff from CNRS and universities. As deputy director of IN2P3, I was involved in the general management and operations of the institute. I was particularly in charge of large research infrastructures and of international affairs.

2016-2018 Scientific director for particle & hadronic physics at IN2P3

Coordination of IN2P3 contributions to the following projects: the four LHC experiments at CERN (ALICE, ATLAS, CMS, LHCb), the Belle-2 experiment at KEK, experiments at Jefferson Lab, the long-baseline neutrino experiments in Japan (T2K) and in the US (DUNE), ultra-cold-neutron experiments at PSI (nEDM), tests of gravitational behavior of anti-hydrogen atoms at CERN (AEgIS, Gbar), and all associated R&D programs, especially those for future colliders as the International Linear Collider; also in charge of the theory programs in these domains at IN2P3. During my mandate, the highlights of my works were the coordination of IN2P3 implication in the ATLAS and CMS upgrades (total M&S budget of 67 M€ for phases 1 and 2 and 300 staff involved), and especially the setting-up of the IN2P3 funding request to the Ministry of Research for the HL-LHC that was approved in 2017. I also supervised the entry of IN2P3 in the Belle-II collaboration and the initial preparation of the IN2P3 participation in the DUNE project.

2011-2015 Deputy Director of IPNL Lyon laboratory (220 employees)

Research activities of the 220 employees of IPNL cover particle physics, nuclear & hadronic physics, astroparticles & cosmology, interdisciplinary applications, and theory. As deputy director, I was in charge with the direction team of operating the laboratory under supervision of IN2P3-CNRS and University Lyon 1, in particular the definition of the scientific policy, resources demands and allocations, scientific projects follow-up. An important aspect of my work has been the implementation of IPNL activities and the start of new projects within the labex “Lyon Institute of Origins”, an “Investissement d’Avenir” program from the Ministry of higher education and scientific research that started in 2011.

2011-2015 Member of the executive committee of the labex [“Lyon Institute of Origins”](#)

History of contributions to international scientific collaborations

Virgo Collaboration, EGO, Cascina

2021 - : I started working on gravitational waves detection and I joined the Virgo collaboration. I am also involved in the Einstein Telescope project, especially in the coordination of the computing aspects as co-chair of the E-Infrastructure board.

CMS Collaboration at the LHC, CERN, Geneva

2014-2016: Measurement of the mass of the top quark in decays with a J/ψ meson at CMS

2008-2014: Search for physics beyond the standard model in the jets+leptons+Missing Et channel at CMS

DØ Collaboration at the Tevatron, Fermilab, Chicago

2003-2010: Data analysis in the DØ experiments: implementation of calorimeter data quality monitoring, algorithms developments and performance measurements for missing Et reconstruction, searches for squarks and gluinos, and other BSM physics scenario (leptoquarks and little Higgs models) in the jets+Missing Et Channel, Standard Model Higgs boson search at high mass in the WW channel

2001-2003: Design, tests and installation of the processor boards of the DØ Level 2 trigger system

DELPHI Collaboration at LEP, CERN, Geneva

1998-2001: Data analysis using neural networks techniques in DELPHI at LEP2 to search for supersymmetry in R-parity conserved scenario (stop and sbottom squarks) and to search for stable R-hadrons in the light gluino scenario

Collaborations with theoretician colleagues on Beyond-the-Standard-Model phenomenology

Supersymmetry, Little-Higgs models, Leptoquarks, Lepton Flavor Violation

Scientific responsibilities

2021- Co-chair of the Einstein Telescope E-Infrastructure Board, member of the Einstein Telescope Executive Board, representative of IP2I at the Einstein Telescope Collaboration Board

2013-2015 CMS team leader at IPN Lyon (18 permanent physicists)

2009-2015 Co-convener of the “Higgs and Supersymmetry” Working Group of the GDR Terascale

2003-2010 Responsibilities in the DØ experiment: co-convener of the “High mass Higgs group” (2010); DØ representative at the “Tevatron New Phenomena Working Group” (2007-2010); co-convener of the “New Phenomena” physics group (2007-2008); Elected member of the Advisory Council of the DØ experiment (2006-2008); Co-convener of the “calorimeter algorithms” group (2004-2005); Co-convener of the “Missing Et” group (2003-2006)

Committees & councils

International:

2021- Co-chair of the steering committee of the DMLab IRL (joint Helmholtz-CNRS laboratory).

2018-2021 Member of the International Neutrino Council

2016-2018 CNRS representative at the LHC Resource Review Board, the DUNE Resource Review Board, the T2K and Belle-II International Financial Overview Panel

National:

2021- Member of the scientific council of LPSC Grenoble

2021- Member of the scientific council of IP2I Lyon

2021 PNHE-committee member for the update of the French Research Infrastructure Roadmap 2021

2019-2020 Member of the direction committee of GANIL

2018 PNHE-committee member for the update of the French Research Infrastructure Roadmap 2018

2011-2015 Member of the scientific committee of the labex “Lyon Institute of Origins”

2014 President of the selection committee for an assistant professor position on string theory (IPNL)

2012 Co-convener of the Working Group “Standard Model”, prospectives IN2P3 et Irfu 2012

2007-2011 Member of the scientific council of IPN Lyon

Publications & conferences

5 Main publications:

- “Measurement of the mass of the top quark in decays with a J/ψ meson in pp collisions at 8 TeV,” V. Khachatryan et al. (CMS Collaboration), JHEP 1612 (2016) 123
- S. Davidson and P. Verdier, “LHC sensitivity to the decay of a Higgs boson to tau mu,” Phys. Rev. D 86 (2012) 111701(R)
- “Search for squarks and gluinos in events with jets and missing transverse energy using 2.1fb⁻¹ of ppbar collision data at $\sqrt{s}=1.96$ TeV,” V.M. Abazov et al. (DØ Collaboration), Phys. Lett. B 660, 449 (2008).
- M. S. Carena, J. Hubisz, M. Perelstein and P. Verdier, “Collider signature of T-quarks,” Phys. Rev. D

75 (2007) 091701

- “Searches for supersymmetric particles in $e^+ e^-$ collisions up to 208-GeV and interpretation of the results within the MSSM,” J. Abdallah et al. (DELPHI Collaboration), Eur. Phys. J. C 31, 421 (2004)

1058 publications (CMS: 639, DØ: 294; DELPHI: 120; phenomenology: 5), 27 with major contributions

The complete list is available on <https://inspirehep.net/author/profile/P.Verdier.1>

46 collaboration internal-notes, 23 for contributions to international conferences

20 invited talks at international conferences

- Co-organizer of the 16th conference on elastic and diffractive scattering (EDS Blois 2015)
- Member of the international advisory committee of the conferences NuFact, LCWS, PANIC and of the International Schools “Asia-Europe-Pacific School of High-Energy Physics” and “African School of Physics” (2019-2021)

Main contributions to strategy documents:

- French national roadmap 2022-2030 for Nuclear Physics, Particle and Astroparticle Physics”, in preparation for the Fall of 2022.
- French national roadmap for research infrastructures 2021, PNHE section, Editor: MESRI, March 2022
- French contributions to the DUNE experiment and to the PIP-II accelerator, scientific, technical and financial document prepared for the Haut Conseil and Direction Committee of TGIR, September 2019
- French national roadmap for research infrastructures 2018, PNHE section, Editor: MESRI, May 2018
- IN2P3 contribution for the update of European Strategy for Particle Physics, December 2018
- French contributions to the ATLAS and CMS upgrades for the HL-LHC, scientific, technical and financial document prepared for the Haut Conseil and Direction Committee of TGIR, September 2019

Teaching & training

PhD directions

2013-2016 Elvire Bouvier, “Top quark mass measurement using $t\bar{t}$ events with a J/ψ in the final state in the CMS experiment at the LHC, co-direction with R. Chierici

2011-2014 Julien Chasserat “Search for third generation leptoquarks in the CMS experiment at the LHC”

2008-2011 Johann Tschudi, “Cosmic-muons reconstruction during collisions and search for gluinos decaying in stop-top in the CMS experiment at the LHC”

Internship supervisions: 3 in Master 2nd year, 6 in Master 1st year, 2 in License 3rd year

Member of 17 PhD evaluation committees, and of 5 juries of “Habilitation à Diriger des Recherches”

2010-2015 Lectures on “Particles & symmetries”, Master 1 ENS Lyon, 30 hours per year

Positions at IN2P3-CNRS

Since 2021	Institut de Physique des 2 Infinis de Lyon
2016 – 2020	IN2P3 direction, Paris
2005 – 2015	Institut de Physique Nucléaire de Lyon
2001 – 2005	Laboratoire de l’Accélérateur Linéaire, Orsay

Employment/education

2019	Research director 1 st class (DR1) at CNRS
2013	Research director 2 nd class (DR2) at CNRS
2007	Habilitation à Diriger des Recherches, referees : P. Petroff, A. Djouadi, P. Janot
2001	Recruited at CNRS as “Chargé de Recherche” (CR2)
1998 – 2001	PhD Thesis, University Claude Bernard Lyon 1, “Squarks and gluinos searches in the DELPHI experiment at LEP”, supervisor: S. Katsanevas
1993 – 1998	Physics studies at Université Claude Bernard Lyon 1
1993	Baccalauréat Lycée du Parc, Lyon

Distinction

Special mention of the jury of the Daniel Guinier young researcher prize (French Physical Society, 2001)