

Stéphane Willocq

Education

- 1988–1992 Tufts University, Medford, MA
Ph.D. Physics
- 1981–1986 Université Libre de Bruxelles, Brussels, Belgium
B.S. Physics

Experience

- 2010–present University of Massachusetts, Amherst
Professor (ATLAS experiment at CERN)
- 2004–2010 University of Massachusetts, Amherst
Associate Professor (ATLAS experiment at CERN)
- 1999–2004 University of Massachusetts, Amherst
Assistant Professor (BaBar and SLD experiments at SLAC)
- 1995–1998 Stanford Linear Accelerator Center
Postdoctoral Research Associate (SLD experiment at SLAC)
- 1993–1995 Yale University
Postdoctoral Research Associate (SLD experiment at SLAC)
- 1987–1992 Fermilab & Tufts University
Graduate Research Assistant (E632 experiment at Fermilab)

Honors

- 2020 UMass Amherst Spotlight Scholar, University of Massachusetts, Amherst
- 2017–2018 Scientific Associate, CERN
- 2016–present Fellow, American Physical Society
- 1991–1992 John F. Burlingame scholarship, Tufts University

Research Focus

- ATLAS* Search for physics beyond the Standard Model in the dilepton final state (searches for heavy W' and Z' bosons, and non-resonant production); emphasis on software and reconstruction of muons with high transverse momentum; development of muon trigger system upgrade for high-luminosity LHC
- Search for physics beyond the Standard Model in the diboson final state; emphasis on final states including Higgs bosons decaying into $b\bar{b}$; first search using jet substructure in large-radius jets to identify high-momentum Higgs bosons (di-Higgs search)
- Measurement of Higgs boson production in association with a weak boson (W or Z) in both the fully leptonic and fully hadronic final states
- BaBar* Measurements of radiative penguin B meson decays ($b \rightarrow s\gamma$ and $b \rightarrow s\ell^+\ell^-$); development of electromagnetic calorimeter reconstruction

SLD Measurements of B meson lifetimes and time-dependent $B_s^0 - \bar{B}_s^0$ oscillations;
Cherenkov Ring Imaging Detector commissioning and calibration

Roles in Experimental Collaborations

Deputy Spokesperson, ATLAS Collaboration, 2023–2025
Coordinator, ATLAS LOMDT project, 2022–2023
Deputy Chair, US ATLAS Institutional Board, 2022
Coordinator, ATLAS Physics, 2019–2021
L3 Manager, US ATLAS LOMDT project, 2018–2019
Chair, ATLAS Publications Committee, 2016–2018
Liaison, ATLAS Exotics Upgrade Physics, 2014–2016
Convener, ATLAS Exotics Physics Group, 2012–2014
Chair, ATLAS Speakers Committee Advisory Board, 2010–2012
Deputy Manager, US ATLAS Physics Support & Computing, 2010–2012
Coordinator, ATLAS Muon Software, 2008–2010
Chair, US ATLAS Analysis Support Group, 2006–2008
Coordinator, ATLAS Muon Reconstruction, 2005–2008
Member, BaBar Publications Board, 2001–2004
Convener, SLD Heavy Flavor Physics Group, 1996–1998
Secretary, SLAC Users Organization Executive Committee, 1995–1998

Selected Publications

G. Aad *et al.* [ATLAS Collaboration], *Search for resonant pair production of Higgs bosons in the $b\bar{b}b\bar{b}$ final state using pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector*, Phys. Rev. D **105**, 092002 (2022).

B. Dobrescu and S. Willocq, *Z' -Boson Searches in Review of Particle Physics*, Prog. Theor. Exp. Phys. **2022**, 083C01 (2022).

G. Aad *et al.* [ATLAS Collaboration], *Search for resonances decaying into a weak vector boson and a Higgs boson in the fully hadronic final state produced in proton–proton collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector*, Phys. Rev. D **102**, 112008 (2020).

H.L. Lin, M. Ramsey-Musolf, and S. Willocq, *Probing a scalar singlet-catalyzed electroweak phase transition with resonant di-Higgs boson production*, Phys. Rev. D **100**, 075035 (2019).

M. Aaboud *et al.* [ATLAS Collaboration], *Combination of searches for heavy resonances decaying into bosonic and leptonic final states using 36 fb^{-1} of proton–proton collision data at $\sqrt{s} = 13$ TeV with the ATLAS detector*, Phys. Rev. D **98**, 052008 (2018).

M. Aaboud *et al.* [ATLAS Collaboration], *Search for diboson resonances with boson-tagged jets in pp collisions at $\sqrt{s} = 13$ TeV with the ATLAS detector*, Phys. Lett. B **777**, 91 (2017).