

Valentina Dutta

Assistant Professor

Carnegie Mellon University

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Experience

Carnegie Mellon University, Physics Department

Assistant Professor

2022 -

University of California Santa Barbara, Department of Physics

Assistant Project Scientist

2020 - 2022

Postdoctoral Scholar

2014 - 2020

Supervisor: Professor Joe Incandela

Education

Massachusetts Institute of Technology / PhD in Physics

June 2014

Concentration: experimental high energy physics

Thesis: “*Evidence for a Higgs Boson in Tau Decays with the CMS Detector*”

Adviser: Professor Markus Klute

Boston University / Bachelor of Arts in Physics and Mathematics

May 2007

Honors: *summa cum laude* with distinction in Physics

Minor concentration: Economics

Senior thesis: “*Search for Technirho and Techniomega Particles in the Di-electron Channel in $p\bar{p}$ Collisions at the Fermilab Tevatron*”

Adviser: Professor Meenakshi Narain

Awards & Honors

Presidential Fellowship, Massachusetts Institute of Technology
2007-2008

College Prize for Excellence in Physics, Boston University
2007

Ada Draper Award, Boston University for outstanding senior women to
complete their studies abroad
2007

Phi Beta Kappa academic honor society
2006 -

Harold C. Case Scholarship, Boston University recognizing scholarly
accomplishment and potential
2006

Trustee Scholarship, Boston University
2003-2007

Leadership Positions

Co-convener of Supersymmetry analysis group, CMS experiment
2021-2023

Co-convener of CMS Supersymmetry “third-generation” subgroup
2019-2021

Co-convener of CMS Supersymmetry Monte Carlo simulation subgroup
2016-2018

Co-convener of CMS Monte Carlo simulation production group
2010-2012

Selected Publications

Note: as a member of the CMS and LDMX Collaborations, my name is included in the author list for all CMS and LDMX papers. The listed publications are selected ones for which I have been one of the main authors and/or to which I have made significant contributions.

CMS Collaboration, “*Search for direct pair production of supersymmetric partners of tau leptons in the final state with two hadronically decaying tau leptons and missing transverse momentum in proton-proton collisions at $\sqrt{s} = 13$ TeV*”
Submitted to Physical Review D, [arXiv:2207.02254](https://arxiv.org/abs/2207.02254)
2022

F. Blekman, F. Déliot, V. Dutta, and E. Usai, “*Four-top quark physics at the LHC*”
Review, submitted to MDPI Universe, [arXiv:2208.04085](https://arxiv.org/abs/2208.04085)
2022

B. Acar *et al*, “*Construction and commissioning of CMS CE prototype silicon modules*”
JINST 16 (2021) 04, T04002, [arXiv:2012.06336](https://arxiv.org/abs/2012.06336)
2021

T. Åkesson *et al*, “*A high efficiency photon veto for the Light Dark Matter eXperiment*”
JHEP 04 (2020) 151, [doi:10.1007/JHEP04\(2020\)003](https://doi.org/10.1007/JHEP04(2020)003), [arXiv:1912.05535](https://arxiv.org/abs/1912.05535)
2020

CMS Collaboration, “*Search for direct pair production of supersymmetric partners to the tau lepton in proton-proton collisions at $\sqrt{s} = 13$ TeV*”
Eur. Phys. J. C 80 (2020) 189, [doi:10.1140/epjc/s10052-020-7739-7](https://doi.org/10.1140/epjc/s10052-020-7739-7),
[arXiv:1907.13179](https://arxiv.org/abs/1907.13179)
2018

CMS Collaboration, "Search for direct production of supersymmetric partners of the top quark in the all-jets final state in proton-proton collisions at $\sqrt{s} = 13$ TeV"
JHEP 10 (2017) 005, [doi:10.1007/JHEP10\(2017\)005](https://doi.org/10.1007/JHEP10(2017)005), [arXiv:1707.03316](https://arxiv.org/abs/1707.03316)
2017

CMS Collaboration, "Searches for pair production of third-generation squarks in $\sqrt{s} = 13$ TeV pp collisions"
Eur. Phys. J. C 77 (2017), 327, [doi:10.1140/epic/s10052-017-4853-2](https://doi.org/10.1140/epic/s10052-017-4853-2),
[arXiv:1612.03877](https://arxiv.org/abs/1612.03877)
2017

CMS Collaboration, "Search for neutral MSSM Higgs bosons decaying to a pair of tau leptons in pp collisions"
JHEP 10 (2014) 160, [doi:10.1007/JHEP10\(2014\)160](https://doi.org/10.1007/JHEP10(2014)160), [arXiv:1408.3316](https://arxiv.org/abs/1408.3316)
2014

CMS Collaboration, "Evidence for the direct decay of the 125 GeV Higgs boson to fermions"
Nature Physics 10 (2014) 557, [doi:10.1038/nphys3005](https://doi.org/10.1038/nphys3005), [arXiv:1401.6527](https://arxiv.org/abs/1401.6527)
2014

CMS Collaboration, "Evidence for the 125 GeV Higgs boson decaying to a pair of tau leptons"
JHEP 05 (2014) 104, [doi:10.1007/JHEP05\(2014\)104](https://doi.org/10.1007/JHEP05(2014)104), [arXiv:1401.5041](https://arxiv.org/abs/1401.5041)
2014

CMS Collaboration, "Observation of a new boson with mass near 125 GeV in pp collisions at $\sqrt{s} = 7$ and 8 TeV"
JHEP 06 (2013) 081, [doi:10.1007/JHEP06\(2013\)081](https://doi.org/10.1007/JHEP06(2013)081), [arXiv:1303.4571](https://arxiv.org/abs/1303.4571)
2013

CMS Collaboration, "Observation of a new boson at a mass of 125 GeV with the CMS experiment at the LHC"
Physics Letters B 716 (2012), [doi:10.1016/j.physletb.2012.08.021](https://doi.org/10.1016/j.physletb.2012.08.021),
[arXiv:1207.7235](https://arxiv.org/abs/1207.7235)
2012