Darin E. Acosta

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Education:

- 1993, Ph.D., High-Energy Physics, University of California, San Diego
  Thesis: "Investigations into Scintillating Fiber Calorimetry and a Measurement of the Two-Photon Production of Charged Meson Pairs
- 1989, M.S., Physics, University of California, San Diego
- 1987, B.S., Physics, California Institute of Technology, Pasadena

Academic Positions:

- 2021–present: Professor, Department of Physics & Astronomy, Rice University
- 2007–present: Professor, Department of Physics, University of Florida
  - 2014–present: affiliate appointment in Department of Electrical and Computer Engineering, University of Florida
- 2003–2007: Associate Professor, Department of Physics, University of Florida
- 1997–2003: Assistant Professor, Department of Physics, University of Florida
- 1993–1997: Research Associate, Department of Physics, The Ohio State University, Columbus. *Postdoctoral advisors:* T.Y. Ling, L.S. Durkin
  1988–1993: Research Assistant, Department of Physics, University of California, San Diego. *Graduate advisor*: H.P.Paar

Awards:

- 2016-19, University of Florida Term Professorship
- 2013, Fellow of the American Physical Society for the Division of Particles and Fields.
  - Citation: For searches for new lepton-quark couplings and compositeness at hadron colliders, and for contributions to the success of the CMS experiment at the LHC through leadership in the areas of detector commissioning, trigger, and coordination of the physics program.
- 2008-10, University of Florida Research Foundation Professorship
- 2001, Outstanding Junior Investigator, Department of Energy

Research Accomplishments:

- Co-Coordinator of CMS Trigger system (2020-)
- Critical contributions to the search for the Higgs boson decay into dimuons, leading to first evidence reported in 2020
- Co-Chair of CMS Supersymmetry Publications Committee (2018-2020)
- USCMS L2 Project Manager for Trigger Operations (2018–)
- USCMS L3 Project Manager for the HL LHC Upgrade of Level-1 Muon Trigger (2016–2020)
- Manager of the Level-1 Trigger project, CMS Collaboration (Project Manager: 2012–2013, Co-Project-Manager: 2014–2016

- Deputy Physics Coordinator, CMS Collaboration (2010–2011).
- Deputy Coordinator of Commissioning and Run Coordination, CMS Collaboration (2007–2010)
- Principal investigator for the development and operation of the "Endcap Muon Track-Finder" for the Level-1 Trigger of the Muon system of the CMS experiment (1998–present), including its upgrade for the High Luminosity LHC
- A.M. Sirunyan et al. (CMS Collaboration), "The Phase-2 Upgrade of the CMS Level-1 Trigger", CERN-LHCC-2020-004; CMS-TDR-021

Selected Publications:

- D. Acosta, E. Barberis, N. Hurley, W. Li, O. Miguel Colin, D. Wood, X. Zuo, "The Potential of a TeV-Scale Muon-Ion Collider", arXiv:2203.06258 (2022)
- D. Acosta and W. Li, "A Muon-Ion Collider at BNL: the future QCD frontier and path to a new energy frontier of muon-antimuon colliders", Nuclear Inst. and Methods in Physics Research A 1027 (2022) 166334
- A.M. Sirunyan et al. (CMS Collaboration), "The Phase-2 Upgrade of the CMS Data Acquisition and High Level Trigger", CERN-LHCC-2021-007; CMS-TDR-022
- A.M. Sirunyan et al. (CMS Collaboration), "Evidence for Higgs boson decay to a pair of muons", J. High Energ. Phys. 01 (2021) 148
- A.M. Sirunyan et al. (CMS Collaboration), "Performance of the CMS Level-1 trigger in proton-proton collisions at $\sqrt{s}$ = 13 TeV", Journal of Instrumentation, 15, P10017 (2020)
- A.M. Sirunyan et al. (CMS Collaboration), "The Phase-2 Upgrade of the CMS Level-1 Trigger", CERN-LHCC-2020-004; CMS-TDR-021
- A.M. Sirunyan et al. (CMS Collaboration), "Search for the Higgs Boson Decaying to Two Muons in Proton-Proton Collisions at $\sqrt{s}$=13 TeV", Physical Review Letters 122 (2019) 021801
- D. Acosta, A. Brinkerhoff, A. Carnes, I. Furic, S. Gleyzer, K. Kotov, J.F. Low, A. Madorsky and B. Scurlock, "Boosted Decision Trees in the CMS Level-1 Endcap Muon Trigger", Proceedings of Science, TWEPP-17 (2017) 143
- A.M. Sirunyan et al. (CMS Collaboration), "The Phase-2 Upgrade of the CMS L1 Trigger Interim Technical Design Report", CERN-LHCC-2017-013; CMS-TDR-017
- V. Khachatryan et al. (CMS Collaboration), "The CMS Trigger System", Journal of Instrumentation, 12, P01020 (2017)
- D. Acosta et al., "The CMS Modular Track Finder boards, MTF6 and MTF7", Journal of Instrumentation 8 (2013) C12034.
- S. Chatrchyan et al. (CMS Collaboration), "Search for a standard model-like Higgs boson in the mu+ mu- and e+ e- decay channels at the LHC", Physics Letters B744 (2015) 184
- S. Chatrchyan et al. (CMS Collaboration), "CMS Technical Design Report for the Level-1 Trigger Upgrade", CERN-LHCC-2013-011, CMS-TDR-012 (2013)

Synergistic Activities:

- Co-convener, TDAQ group of the Instrumentation Frontier, Snowmass 2021 workshop
- US LHC Users Association Executive Committee (2013–2020)
- UF QuarkNet Center coordinator (2017–2021)
- Chair of the CMS TriDAS Institution Board (2018–2021)