

Eva Halkiadakis

Title and Address:

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Education

Highest Earned Degree

Ph.D., Experimental Particle Physics, Rutgers University, 2001

Other Earned Degrees

B.S. Physics / B.A. French, Rutgers University, 1995

Employment History

Positions Held

07/2016-ongoing | Rutgers University, Professor
07/2012-06/2016 | Rutgers University, Associate Professor
07/2006-06/2012 | Rutgers University, Assistant Professor
01/2006-06/2006 | Rutgers University, Assistant Research Professor
07/2001-12/2005 | University of Rochester, Research Associate

Research Interests

Description of Research and Scholarly or Creative Objectives

CMS (Compact Muon Solenoid), 2001–Present
CDF (Collider Detector at Fermilab), 2000–2012
KTeV (Kaons at the Tevatron), 1994–2003

Honors and Awards

Professional Awards and Honors

2015 | Member of High Energy Physics Advisory Panel (HEPAP), 2015 - 2016
2015 | Fermilab Universities Research Association Visiting Scholars Program, May 2015 - April 2016
2015 | American Physical Society Fellow, Division of Particles and Fields, 2015

2009 Rutgers SPS Outstanding Teaching Award, April 2009

2008 NSF CAREER Award, 2008–2013

Fellowships

Rutgers Board of Trustees Research Fellowship for Scholarly Excellence, 2012

Fermilab LHC Physics Center (LPC) Fellowship, May 2012- December 2012

Fermilab LHC Physics Center (LPC) Fellowship, May 2011- May 2012,

Conference Presentations, Lectures, Demonstrations

Keynote or Plenary Addresses

2021 *APS April Meeting 2021 (April 2021), Online*. Presentation Title: “Physics Beyond the Standard Model at the LHC”

2020 *Aspen 2020 Winter Conference (March 2020, Cancelled due to COVID-19), Aspen, CO*. Presentation Title: “Summary of Experimental Results”

2017 *Aspen 2017 Winter Conference (March 2017), Aspen, CO*. Presentation Title: “New Phenomena Searches: Searches Using Jet Substructure”

2016 *3rd New Physics Korea Institute (NPKI) Workshop on The Lessons from the First Results of Run 2 of the LHC (June 2016), Amherst, MA*. Presentation Title: “First BSM results from Run 2 of the LHC: Searches for diphoton and Zgamma Resonances”

2015 *International Workshop on Baryon and Lepton Number Violation (April 2015), Amherst, MA*. Presentation Title: “Searches for New Physics at the LHC”

Invited Addresses

2020 *Drexel University Colloquium (April 2020, Cancelled due to COVID-19)*. Presentation Title: TBD.

2018 *California Institute of Technology Colloquium (May 2018)*. Presentation Title: Exploring the Energy Frontier at the LHC. Colloquium also given at:

- NYU (May 2017)
- Wayne State University (Nov. 2016)
- University of Minnesota (Feb. 2016)

Service

Research

Member, International Advisory Committee for the International Workshop on Charged Higgs (Aug. 2021), 2021 - present

Member, USCMS Advisory Board (*Elected Position*), 2021 - present

2019-ongoing Member, Panofsky Prize Committee, APS Division of Particles and Fields, 2019 - present

- 2019-ongoing | Member, US LHC Users Organization Executive Committee (*Elected Position*), 2019 - present
- 2017-ongoing | Member, CMS Exotica/Beyond 2 Generations Publications Committee, 2017 - present
- 2016-ongoing | Representative, CMS Tracker Institution Board, 2016 - present
- 2019 | Organizer, International Workshop on Baryon and Lepton Number Violation, October 2019
- 2018-2019 | Organizer, Rencontres du Vietnam, September 2019
- 2017-2019 | Member, USCMS Phase 2 Advisory Board, 2017 - 2019
- 2017-2019 | Member, Fermilab LHC Physics Center Management Board, 2017 - 2019
- 2017-2018 | Organizer, Aspen Winter Conference, March 2018
- 2016-2019 | External Member, Research Advisory Committee for Anshul Kapoor, IISER Pune, 2016 - 2019
- 2017 | Member, CMS Track Trigger Task Force for the HL-LHC Upgrades, 2017
- 2017 | External Reviewer, Dissertation Committee for Federico Preiato, Roma "La Sapienza", 2017
- 2016 | Chair and Participant, Workshop on "Experimental Challenges for the LHC Run 2", Kavli Institute for Theoretical Physics (KITP), Santa Barbara, CA, May 2016.
- 2015-2017 | Convener, CMS Exotica Non-Hadronic Physics Subgroup. I was the co-leader of one of the six sub-groups of the CMS Exotica physics group. This working group is dedicated to searches for new physics in a variety of final states, excluding jets (which has its own subgroup), such as searches for dilepton and diphoton resonances, and searches in a lepton plus missing energy final state.
- 2015-2016 | Member, Fermilab LPC Guest and Visitor Program Committee, 2015 - 2016
- 2014-2015 | Member, Amherst Center for Fundamental Interactions (ACFI) Advisory Board, 2014 - 2015
- 2012-2013 | Convener, CMS SUSY Physics Group. There are nine physics analysis groups at CMS each led by two co-conveners for a two year period. I was appointed co-convener of SUSY physics group in September 2011, with the convenership officially starting in 2012, and continuing through December 2013. My convenership of the CMS SUSY group was during the peak data-taking period of LHC Run 1 - the 8 TeV proton-proton collisions of 2012.
- 2007-ongoing | Referee, Physical Review Letters and Physical Review D
- 2008-ongoing | Reviewer, NSF/DOE Panel and Proposal Reviewer: I have served on several NSF/DOE panels as well as a reviewer of proposals, submitting a written report.

Outreach

- 2021 | Participant, Virtual Annual STEM Networking Night with the Rutgers Douglass Project, April 2021
- 2007-ongoing | Organizer, *Quarknet Program at Rutgers*, Summer program with NJ High School Teachers and Students
- 2007-ongoing | Member, *Rutgers Speakers Bureau*

- 2015-2016 | Research Experience for Undergraduates (REU) Program: Co-supervised 1-2 students each summer
- 2015 | Organizer, Rutgers Society of Physics Students Trivia Night. The SPS hosted its first ever Trivia Night, a Jeopardy-like competition with three teams consisting of both professors and students, on April 2015. The idea came from my discussions with several physics undergraduates in my classes, with whom I helped create and organize this event. It was very successful and we aim to make it an annual departmental activity.
- 2014-2015 | Speaker, *Introduction to Scientific Research Course for Douglass Residential College, Rutgers*. Title: "The Physics of the Large Hadron Collider", Organized by the Douglass Project for Rutgers Women in Math, Science, and Engineering, March 2014 and 2015
- 2014-2015 | Member, Organizing Committee for Conference for Undergraduate Women in Physics (CUWiP) at Rutgers University, which took place on January 2015

Service to Rutgers University

- 2020-ongoing | Undergraduate Advising Committee
- 2020-ongoing | Computer Services Committee
- 2019-ongoing | SAS Affirmative Action Committee
- 2019-2020 | Teaching Peer Review Committee
- 2017-2020 | Graduate Admissions Committee
- 2015-2020 | Placement and Challenge Exams Committee
- 2015-2020 | Ph. D. Qualifier Committee
- 2016 | Chair Election Committee
- 2014-2018 | Graduate Recruitment Committee
- 2014-2017 | Appointment and Promotions Committee. Requested by Ronald Ransome, Dean of Math & Physical Sciences, Interim Vice Dean of Administration, School of Arts and Sciences.

Students Supervised

Master's or Doctoral Students by Type of Supervision

Doctoral - Primary

- 2021 | Adam Kobert: 2020-present, "Search for Low Mass Quark-Anti-Quark Resonances" [Primary Advisor]
- 2021 | Steven Clark: 2018-present, "Search for Multiphoton Resonances" [Primary Advisor]
- 2018 | Alejandro Espinosa Gomez (Defended): 2013-2018, "Search for Pair-Produced Diquark Resonances in p-p collisions with the CMS Detector at 13TeV". (Ph.D. May 2018) [Primary Advisor]
- 2014 | Claudia Seitz (Defended): 2011-2014, "Searches for Light- and Heavy-Flavor Three-Jet Resonances in Proton-Proton Collisions with the CMS Detector at 8 TeV" (Ph.D. January 2014) [Primary Advisor]

- 2011 | Daryl Hare (Defended): 2005-2011, "Measurement of top quark properties in the tau+jets channel at CDF" (Ph.D. October 2011) [Primary Advisor]

Master's - Primary

- 2018 | Ruturaj Apte: 2015-2018, "Search for Boosted Low Mass Dijet Resonances at the LHC". (Masters Degree October 2018) [Primary Advisor]

Postdoctoral Trainees

- 2016 | Marc Osherson: 2016 - present
- 2015 | Dan Duggan: 2009 - 2015: CERN Fellow, now in Industry.
- 2015 | Dean Hidas: 2009 - 2015: Now at Brookhaven National Laboratory as Photon Sciences Staff

Publications

Significant Publications

- 2021 | **"Beam test performance of a prototype module with Short Strip ASICs for the CMS HL-LHC tracker upgrade"**, [CMS Collaboration], *In Collaboration Review*.
- 2021 | **"Search for new particles in an extended higgs sector in the four b final state at $\sqrt{s}=13$ TeV"**, [CMS Collaboration], *In Collaboration Review*.
- 2021 | **"Searches for paired dijet resonances with the full Run II data at $\sqrt{s}=13$ TeV"**, [CMS Collaboration], *In progress*.
- 2019 | **"Search for low mass vector resonances produced in association with a photon at $\sqrt{s}=13$ TeV"**, A. Sirunyan *et al.*, [CMS Collaboration], [Phys. Rev. Lett. 123 \(2019\) 231803](#), 17 pages.
- 2018 | **"Search for pair-produced resonances decaying to quark pairs in proton-proton collisions at $\sqrt{s}=13$ TeV"**, A. Sirunyan *et al.*, [CMS Collaboration], [Phys. Rev. D 98 \(2018\) 112014](#), 25 pages.
- 2018 | **"Search for low mass vector resonances decaying into quark-antiquark pairs in proton-proton collisions at $\sqrt{s}=13$ TeV"**, A. Sirunyan *et al.*, [CMS Collaboration], [JHEP 1801 \(2018\) 097](#), 40 pages.
- 2017 | **"Search for low mass vector resonances decaying into quark-antiquark pairs in proton-proton collisions at $\sqrt{s}=13$ TeV"**, A. Sirunyan *et al.*, [CMS Collaboration], [Phys. Rev. Lett. 119 \(2017\) 111802](#), 18 pages.
- 2015 | **"Search for pair-produced resonances decaying to jet pairs in proton-proton collisions at $\sqrt{s}=8$ TeV"**, V. Khachatryan *et al.*, [CMS Collaboration], [Phys. Lett. B 747 \(2015\) 98](#), 22 pages.
- 2014 | **"Status and Implications of Beyond-the-Standard-Model Searches at the LHC"**, E. Halkiadakis, G. Redlinger, D. Shih, [Annual Review of Nuclear and Particle Science 64, 319 \(2014\)](#), 22 pages.
- 2014 | **"Searches for light- and heavy-flavour three-jet resonances in pp collisions at $\sqrt{s}=8$ TeV"**, S. Chatrchyan *et al.*, [CMS Collaboration], [Phys. Lett. B 730, 193 \(2014\)](#), 22 pages.

- 2013 | **Search for pair-produced dijet resonances in four-jet final states in pp collisions at $\sqrt{s} = 7$ TeV**, S. Chatrchyan *et al.*, [CMS Collaboration], [Phys. Rev. Lett. **110**, 141802 \(2013\)](#), 15 pages
- 2012 | **Search for three-jet resonances in pp collisions at $\sqrt{s} = 7$ TeV**, S. Chatrchyan *et al.*, [CMS Collaboration], [Phys. Lett. **B718**, 329 \(2012\)](#), 27 pages.
- 2012 | **Search for charge-asymmetric production of W' bosons in top pair + jet events from pp collisions at $\sqrt{s} = 7$ TeV**, S. Chatrchyan *et al.* [CMS Collaboration], [Phys. Lett. **B717**, 351 \(2012\)](#), 20 pages.
- 2011 | **Search for Three-Jet Resonances in pp Collisions at $\sqrt{s} = 7$ TeV**, S. Chatrchyan *et al.* [CMS Collaboration], [Phys. Rev. Lett. **107**, 101801 \(2011\)](#), 15 pages.
- 2011 | **Search for supersymmetry in events with a lepton, a photon, and large missing transverse energy in pp collisions at $\sqrt{s} = 7$ TeV**, S. Chatrchyan *et al.* [CMS Collaboration], [JHEP **06**, 093 \(2011\)](#), 28 pages.
- 2011 | **First Search for Multijet Resonances in $\sqrt{s} = 1.96$ TeV p-pbar Collisions**, T. Aaltonen *et al.* [CDF Collaboration], [Phys. Rev. Lett. **107**, 042001 \(2011\)](#), 7 pages.