

JOHN PAUL CHOU
CURRICULUM VITAE (WEDNESDAY, MARCH 15, 2017)

Rutgers University
Department of Physics and Astronomy
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BORN
Buenos Aires, Argentina

EDUCATION

Harvard University

Ph.D. in Physics, September 2008; Advisor, Melissa Franklin
A.M. in Physics, May 2005.

Princeton University

A.B. *cum laude* in Physics, May 2002.

POSITIONS

Rutgers University

Assistant Professor, 2011–present

Brown University

Research Associate, 2008–2011

RESEARCH INTERESTS

CMS Experiment, 2008–present
CDF Experiment, 2003–2011

GRANTS & AWARDS

- Rutgers SPS Outstanding Teacher Award, 2015
- Alfred P. Sloan Research Fellowship, 2014–2016
- LHC Physics Center Distinguished Researcher, 2014
- NSF Grant PHY-1607096 (co-PI), 2016–present
- NSF Grant PHY-1306801 (co-PI), 2014–2016
- NSF Grant PHY-1305873 (PI), 2013–2014
- LHC Physics Center Guest and Visitors Program, 2013
- LHC Physics Center Junior Fellowship, 2011
- Kusaka Memorial Prize in Physics, Princeton University, 2002
- Sigma Xi Society, Princeton University, 2002

TEACHING

Lecturer, Rutgers University

- Physics 124: Analytical Physics Ib (Spring 2015, Spring 2016, Spring 2017)
- Physics 273: Honors Physics III, Modern Physics (Fall 2012, Fall 2016)
- Physics 418: Nuclei and Particles (Spring 2012, Spring 2013)
- Physics 693: Advanced Topics in High Energy Physics (Fall 2015)
- Guest Lecture for Physics 273 (Nov. 2011, Nov. 2013)

Lecturer, African School of Fundamental Physics and Applications

- University of Rwanda, Kigali Rwanda (Aug. 2016)

- Cheikh Anta Diop University, Dakar, Senegal (Aug. 2014)

Instructor, Fermilab

- CMS Data Analysis School (Jan. 2011, Jan. 2014)

Teaching Fellow, Harvard University

- Physics 145: Elementary Particle Physics (Spring 2004)

SERVICE

Rutgers University

- Graduate Admissions Committee, 2014–present
- Graduate Recruiting Committee, 2011–2013, 2016–present
- GSO Faculty Liaison, 2011–2012, 2016–present
- Conference Committee, 2012–2013, 2015–present
- Committee On New Direction Of Research, 2017

CMS Experiment

- HCAL Detector Performance Group Convener, 2015–present
- Organizer of CMS Exotica Workshop at CIEMAT, Madrid, Spain, Nov. 2014
- Exotica Physics Convener, 2013–2014
- Principal Organizer of CMS Exotica Workshop at Princeton Center for Theoretical Science, Princeton, NJ, Nov. 2013
- Statistics Committee Member, 2012
- Exotica Non-Hadronic Subgroup Convener, 2011–2012

Other Professional

- Journal Referee for European Physics Journal C 2014–present
- Reviewer for Particle Data Group 2016
- Organizer of the Dark Interactions Workshop, Brookhaven National Lab, Brookhaven, NY, October 2016
- Organizer of the Workshop on Dark Vector Boson Searches, Brookhaven National Lab, Brookhaven, NY, June 2014
- Organizer of the Higgs Portal Workshop, UMass, Amherst, MA, May 2014
- Principal Organizer of the Workshop on Exotic Top Partners at Fermilab, Batavia, IL, Sept. 2013
- LPC Topic of the Week Committee, 2009–2011 (chair 2010–2011)

SIGNIFICANT PAPERS

Primary (Co-)Author

- Chou, J.P., Curtin D., Lubatti H., “New Detectors to Explore the Lifetime Frontier,” arXiv:1606.06298, accepted by *Phys. Lett. B*.
- CMS Experiment, “Search for Narrow Resonances Decaying to Dijets in Proton-Proton Collisions at $\sqrt{s}=13$ TeV” *Phys. Rev. Lett.* 116 (2016) 071801.
- CMS Experiment, “Search for jet extinction in the inclusive jet- p_T spectrum from proton-proton collisions at $\sqrt{s} = 8$ TeV,” *Phys. Rev. D* 90 (2014) 032005.
- CMS Experiment, “Search for narrow resonances and quantum black holes in inclusive and b-tagged dijet mass spectra from pp collisions at $\sqrt{s}=7$ TeV,” *JHEP* 01 (2013) 013.
- CMS Experiment, “Search for supersymmetry in events with photons and low missing transverse energy in pp collisions at $\sqrt{s}=7$ TeV,” *Phys. Lett. B* 719 (2013) 42.
- CMS Experiment, “Performance of b tagging at $\sqrt{s} = 8$ TeV in multijet, $t\bar{t}$, and boosted topology events,” CMS Physics Analysis Summary BTV-13-001.

- CDF Experiment, "Observation of the Production of a W Boson in Association with a Single Charm Quark," *Phys. Rev. Lett.* 110 (2013) 071801.
- CMS Experiment, "Search for Dark Matter and Large Extra Dimensions in pp Collisions Yielding a Photon and Missing Transverse Energy," *Phys. Rev. Lett.* 108 (2012) 261803.
- CMS Experiment, "Search for signatures of extra dimensions in the diphoton mass spectrum at the Large Hadron Collider," *Phys. Rev. Lett.* 108 (2012) 111801.
- CMS Experiment, "Search for Resonances in the Dijet Mass Spectrum from 7 TeV pp Collisions at CMS," *Phys. Lett. B* 704 (2011) 123.
- CMS Experiment, "Search for Large Extra Dimensions in the Diphoton Final State at the Large Hadron Collider," *JHEP* 05 (2011) 085.
- CMS Experiment, "Identification and Filtering of Uncharacteristic Noise in the CMS Hadron Calorimeter," *JINST* 5 (2010) T03014.
- CDF Experiment, "Exclusion of an Exotic Top Quark with $-4/3$ Electric Charge Using Soft Lepton Tagging," *Phys. Rev. Lett.* 105 (2010) 101801.
- CDF Experiment, "Measurement of the $t\bar{t}$ Production Cross Section in $p\bar{p}$ Collisions at $\sqrt{s}=1.96$ TeV using Soft Electron b-Tagging," *Phys. Rev. D* 81 (2010) 092002.

Contributing Author

- J.P. Chou, N. Craig, P. Draper, D. Egana-Ugrinovic, et al, "Pseudo-Axion Signatures of Anomalous Sigma Models," in preparation.
- CMS Experiment, "Search for narrow resonances in dijet final states at $\sqrt{s}=8$ TeV with the novel CMS technique of data scouting", *Phys. Rev. Lett.* 117 (2016) 031802.
- D. Abercrombie, et al, "Dark Matter Benchmark Models for Early LHC Run-2 Searches: Report of the ATLAS/CMS Dark Matter Forum," arXiv:1507.00966.
- CMS Experiment, "Search for heavy resonances decaying to two Higgs bosons in final states containing four b quarks", *Eur. Phys. J. C.* 76 (2016) 7.
- CMS Experiment, "Search for pair-produced vectorlike B quarks in proton-proton collisions at $\sqrt{s}=8$ TeV," *Phys. Rev. D* 93 (2016) 112009.
- CMS Collaboration, "Search for vector-like T quarks decaying to top quarks and Higgs bosons in the all-hadronic channel using jet substructure," *JHEP* 06 (2015) 080.
- CMS Experiment, "Search for stealth supersymmetry in events with jets, either photons or leptons, and low missing transverse momentum in pp collisions at 8 TeV," *Phys. Lett. B* 743 (2015) 503.
- CMS Experiment, "Search for pair-produced resonances decaying to jet pairs in proton-proton collisions at $\sqrt{s}=8$ TeV," *Phys. Lett. B* 747 (2015) 98.
- CMS Experiment, "Searches for light- and heavy-flavour three-jet resonances in pp collisions at $\sqrt{s}=8$ TeV," *Phys. Lett. B* 730 (2014) 193.
- CMS Experiment, "Search for narrow resonances using the dijet mass spectrum in pp collisions at $\sqrt{s}=8$ TeV," *Phys. Rev. D* 87 (2013) 114015.
- CMS Experiment, "Search for Anomalous Production of Multilepton Events in pp Collisions at $\sqrt{s}=7$ TeV," *JHEP* 06 (2012) 169.

Convener/Analysis Review Committee

- CMS Experiment, "Search for long-lived particles that decay into final states containing two electrons or two muons in proton-proton collisions at $\sqrt{s}=8$ TeV," *Phys. Rev. D* 91 (2015) 052012.

- CMS Experiment, “Search for long-lived neutral particles decaying to quark-antiquark pairs in proton-proton collisions at $\sqrt{s} = 8$ TeV,” *Phys. Rev. D* 91 (2015) 012007.
- CMS Experiment, “Search for disappearing tracks in proton-proton collisions at $\sqrt{s} = 8$ TeV,” *JHEP* 01 (2015) 096.
- CMS Experiment, “Search for quark contact interactions and extra spatial dimensions using dijet angular distributions in proton-proton collisions at $\sqrt{s} = 8$ TeV,” *Phys. Lett. B* 746 (2015) 79.
- CMS Experiment, “Search for new phenomena in monophoton final states in proton-proton collisions at $\sqrt{s} = 8$ TeV,” *Phys. Lett. B* 755 (2016) 102.
- CMS Experiment, “Search for dark matter, extra dimensions, and unparticles in monojet events in proton-proton collisions at $\sqrt{s} = 8$ TeV,” *Eur. Phys. J. C* 75 (2015) 235.
- CMS Experiment, “Search for physics beyond the standard model in final states with a lepton and missing transverse energy in proton-proton collisions at $\sqrt{s} = 8$ TeV,” *Phys. Rev. D* 91 (2015) 092005.
- CMS Experiment, “Search for new resonances decaying via WZ to leptons in proton-proton collisions at $\sqrt{s} = 8$ TeV,” *Phys. Lett. B* 740 (2015) 83.
- CMS Experiment, “Search for pair production of third-generation scalar leptoquarks and top squarks in proton-proton collisions at $\sqrt{s} = 8$ TeV,” *Phys. Lett. B* 739 (2014) 229.
- CMS Experiment, “Search for heavy neutrinos and W bosons with right-handed couplings in proton-proton collisions at $\sqrt{s} = 8$ TeV,” *Eur. Phys. J. C* 74 (2014) 3149.
- CMS Experiment, “Search for excited quarks in the photon+jet final state in proton-proton collisions at $\sqrt{s} = 8$ TeV,” *Phys. Lett. B* 738 (2014) 274.
- CMS Experiment, “Search for baryon number violation in top-quark decays,” *Phys. Lett. B* 731 (2014) 173.
- CMS Experiment, “Search for massive resonances decaying into pairs of boosted bosons in semi-leptonic final states at $\sqrt{s} = 8$ TeV,” *JHEP* 08 (2014) 174.
- CMS Experiment, “Search for massive resonances in dijet systems containing jets tagged as W or Z boson decays in pp collisions at $\sqrt{s} = 8$ TeV,” *JHEP* 08 (2014) 173.
- CMS Experiment, “Search for microscopic black holes in pp collisions at $\sqrt{s} = 8$ TeV,” *JHEP* 07 (2013) 178.
- CMS Experiment, “Searches for long-lived charged particles in pp collisions at $\sqrt{s} = 7$ and 8 TeV,” *JHEP* 07 (2013) 122.
- CMS Experiment, “Search for heavy narrow dilepton resonances in pp collisions at $\sqrt{s} = 7$ TeV and $\sqrt{s} = 8$ TeV,” *Phys. Lett. B* 720 (2013) 63.
- CMS Experiment, “Search for new physics in final states with a lepton and missing transverse energy in pp collisions at the LHC,” *Phys. Rev. D* 87 (2013) 072005
- CMS Experiment, “Measurement of the top-antitop production cross section in the tau+jets channel in pp collisions at $\sqrt{s} = 7$ TeV,” *Eur. Phys. J. C* 73 (2013) 2386.
- CMS Experiment, “Search for pair-produced dijet resonances in four-jet final states in pp collisions at $\sqrt{s} = 7$ TeV,” *Phys. Rev. Lett.* 110 (2013) 141802.
- CMS Experiment, “Search for new physics in events with photons, jets, and missing transverse energy in pp collisions at $\sqrt{s} = 7$ TeV,” *JHEP* 03 (2013) 111.
- CMS Experiment, “Search for contact interactions in opposite-sign dimuon events in pp collisions at $\sqrt{s} = 7$ TeV,” *Phys. Rev. D* 87 (2013) 032001.

- CMS Experiment, “Search for a non-standard-model Higgs boson decaying to a pair of new light bosons in four-muon final states,” *Phys. Lett. B* 726 (2013) 564.
- CMS Experiment, “Search for heavy lepton partners of neutrinos in proton-proton collisions in the context of the type III seesaw mechanism,” *Phys. Lett. B* 718 (2012) 348.
- CMS Experiment, “Search for a W' or techni-rho decaying into WZ in pp collisions at $\sqrt{s} = 7$ TeV,” *Phys. Rev. Lett.* 109 (2012) 141801.
- CMS Experiment, “Search for leptonic decays of W' bosons in pp collisions at $\sqrt{s} = 7$ TeV,” *JHEP* 08 (2012) 023.
- CMS Experiment, “Search for large extra dimensions in dimuon and dielectron events in pp collisions at $\sqrt{s} = 7$ TeV,” *Phys. Lett. B* 711 (2012) 15.
- CMS Experiment, “Measurement of the Top-antitop Production Cross Section in pp Collisions at $\sqrt{s}=7$ TeV using the Kinematic Properties of Events with Leptons and Jets,” *Eur. Phys. J. C* 9 (2011) 1721.

TALKS

Invited, Keynote, and Plenary Addresses

- “Experimental Exotics” at *Digging Deeper: PITT PACC Workshop* (Feb. 2017), Pittsburgh, PA
- “Prospects for Higgs decays to Ultra-long-lived particles” at *Exotic Higgs Decay Meeting* (Nov. 2016), SLAC, Menlo Park, CA
- “Unconventional Signatures” at *Strategy Workshop on High-Energy Particle Physics in Switzerland* (June 2016), Unterägeri, Switzerland
- “Two photon results from CMS” at *New Physics Interpretations at the LHC* (May 2016), Argonne National Lab, Lemont, IL
- “CMS” at the *Hidden Naturalness Workshop* (April 2016), College Park, MD
- “New physics in final states with light SM particles CMS” at *Rencontres de Moriond QCD* (Mar. 2016), La Thuile, Italy
- “Latest Developments from CMS” at *Brookhaven Forum 2015: Great Expectations, a New Chapter* (Oct. 2015), Brookhaven National Lab, Brookhaven, NY
- “New Physics from CMS: Hints from Run 1 and Prospects for Run 2” at *Mitchell Workshop on Collider and Dark Matter Physics* (May 2015), Texas A&M University, College Station, TX
- “Searches for Exotic Phenomena” at *International Committee for Future Accelerators Seminar* (Oct. 2014), IHEP, Beijing, China
- “Searches for Hidden Valleys at CMS” at *Dark Interactions: Perspectives from Theory and Experiment* (Jun. 2014), Brookhaven National Lab, Brookhaven, NY
- “Status of CMS Exotica Results” at *Mitchell Workshop on Collider and Dark Matter Physics* (May 2014), Texas A&M University, College Station, TX
- “Results on Searches for Exotica” at the *International Symposium on Higgs Boson Physics* (Aug. 2013), IHEP, Beijing, China
- “Searches for Exotica at the LHC” at *Rencontres de Moriond QCD* (Mar. 2013), La Thuile, Italy
- “Recent Results from the CMS Experiment” at *Tools 2012 Workshop* (Jun. 2012), Stockholm, Sweden
- “Status and Outlook of Beyond the Standard Model physics with photons at the LHC” at *Chicago 2012 Workshop on LHC Physics* (May 2012), Chicago, IL
- “Recent Dark Matter Limits from CDF and CMS” at *Dark Matter in Collision Workshop* (Apr. 2012), Davis, CA

- “Hard QCD Results with Jets and Photons at the Tevatron” at *Hadron Collider Physics Symposium 2011* (Nov. 2011), Paris, France
- “Physics Results from Recent Data and Prospects for New Physics Searches at CMS” at *PPC2010: Fourth International Workshop on the Interconnection between Particle Physics and Cosmology* (Jul. 2010), Torino, Italy

Other Talks, Seminars, and Colloquia

- Colloquium at Rutgers University, Piscataway, NJ (Sept. 2016)
- Seminar at University of Pennsylvania, Philadelphia, PA (Apr. 2015)
- Seminar at LBNL, Berkeley, CA (Mar. 2015)
- “Wine and Cheese” Seminar at Fermilab, Batavia, IL (Jan. 2015)
- Seminar at IHEP, Beijing, China (Nov. 2014)
- Seminar at LPC Physics Forum, Fermilab, Batavia, IL (Feb. 2014)
- Outreach talk at East Brunswick High School, NJ (Feb. 2012)
- Outreach talk for Society of Physics Students at Rutgers University (Nov. 2011)
- Seminar for Graduate Students at Rutgers University (Nov. 2011, Oct. 2012, Jan. 2014)
- Colloquium at University of Louisville (Mar. 2011), Louisville, KY
- Seminar at Rutgers University (Feb. 2011)

GRADUATE STUDENTS

Elliot “Tote” Hughes, anticipated Ph.D. in 2017
 Steven Kaplan, anticipated Ph.D. in 2016

POSTDOCTORAL ADVISEES

Dinko Ferencek (2011–2015)
 Antonios Agapitos (2016–present)