John Kehayias

Lecturer · University of Pennsylvania
The Marks Family Center for Excellence in Writing
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Education

University of California, Santa Cruz

PhD, MS in Physics — *2006 — 2011*

Advisers: Michael Dine and Stefano Profumo

Columbia University

BA — *2003 — 2006*

Majors: Physics and Mathematics

Rensselaer Polytechnic Institute

Transferred after first year to Columbia University. — *2002 — 2003*

Experience

Critical Writing Program — *University of Pennsylvania*

Lecturer — *August 2017 — Present*

- Teach undergraduate critical writing seminars (maximum 16 students) based on academic writing in the sciences.
- Meet with students individually, hold office hours, provide extensive feedback to develop reading, writing, and research skills.
- Courses include "Science & Politics," "Physics of Everyday Life," "Policing Social Media and Its Impacts," and a Penn Global Seminar, "Scientific Nationalism in Japan" (Spring 2020), with travel to Japan (travel canceled due to COVID-19 pandemic).
- The Critical Writing Program was awarded a Writing Program Certificate of Excellence by the Conference on College Composition & Communication in 2018.

Department of Physics & Astronomy — *Vanderbilt University*

Postdoctoral Scholar — *Oct. 2014 — Oct. 2016*

Research in theoretical particle physics, cosmology, and astrophysics.

Kavli Institute for the Physics and Mathematics of the Universe — *Todai Institutes for Advanced Study, The University of Tokyo*

Postdoctoral Research Fellow — *Sept. 2011 — Sept. 2014*

Research in high-energy/particle physics, gravity, and astrophysics.

Service

Community Writing Assistance at the Free Library of Philadelphia — *Charles Santore Branch*

Faculty Staff and Organizer — *2018–Present*

Organize a community writing assistance program with colleagues in the Critical Writing Program with the Free Library of Philadelphia. Volunteer at a local branch to help members with resumes, cover letters, and other pieces of writing.

The Marks Family Center for Excellence in Writing — *University of Pennsylvania*

Department Service — *2017–Present*

Recruiting and Hiring Committee 2019-20: attended interviews, candidate talks, visits and lunches, provided recommendations on candidates; recommended students for tutor positions, Phi Betta Kappa; cover classes for colleagues

SUNFEST (The Summer Undergraduate Fellowship in Sensor Technologies) — *University of Pennsylvania*

Science Writing Workshop — *Summer 2019*

Led a workshop on scientific writing for visiting undergraduate students.

Penn HOSA (Future Health Professionals) Club *University of Pennsylvania*

Faculty Co-Advisor *2017–2018*

Assisted student leaders to establish and run a Penn chapter of the international HOSA organization.

Prior Teaching Experience

Physics Department *University of California, Santa Cruz*

Teaching Assistant *September 2006–June 2011*

Classes: Physics 5A, 6A, 6B, 6C, 110B, 116A, 139A

Taught lab sections or discussion sections, graded, gave written evaluations, and held office hours.

COSMOS: "California State Summer School for Mathematics and Science" *University of California, Santa Cruz*

Teaching Assistant *July–August, 2007–2009*

Assisted with the particle physics lab section of COSMOS at UCSC for high school students.

Publications

Journal Articles

Neighborhood Writing: Developing Drop-In Writing Consultations in Philadelphia Public Libraries

D. M. Walker, P. Manning, J. Kehayias

Community Literacy Journal Special Issue: Community-Engaged Writing & Literacy Centers: A Critical Field Scan of Theory and History, Practice and Place (2020) Submitted for publication. 2020

New generic evolution for k-essence dark energy with $w \approx -1$

J. Kehayias, R. J. Scherrer

Phys. Rev. D100.2 (2019) p. 023525. 2019. arXiv: 1905.05628 (gr-qc)

Oscillating and Static Universes from a Single Barotropic Fluid

J. Kehayias, R. J. Scherrer

JCAP 1512.12 (2015) p. 015. 2015. arXiv: 1509.08915 (hep-th)

The Excess Radio Background and Fast Radio Transients

J. Kehayias, T. W. Kephart, T. J. Weiler

JCAP 2015.10 (2015) p. 053. 2015. arXiv: 1509.00011 (astro-ph.CO)

Chaotic Inflation from Nonlinear Sigma Models in Supergravity

S. Hellerman, J. Kehayias, T. T. Yanagida

Phys.Lett. B742 (2015) pp. 390–393. 2015. arXiv: 1411.3720 (hep-ph)

A keV String Axion from High Scale Supersymmetry

B. Henning, J. Kehayias, H. Murayama, D. Pinner, T. T. Yanagida

Phys.Rev. D91.4 (2015) p. 045036. 2015. arXiv: 1408.0286 (hep-ph)

Emergent Lorentz Signature, Fermions, and the Standard Model

J. Kehayias, S. Mukohyama, J.-P. Uzan

Phys.Rev. D89 (2014) p. 105017. 2014. arXiv: 1403.0580 (hep-th)

Charge Quantization and the Standard Model from the $\mathbb{CP}^2$ and $\mathbb{CP}^3$ Nonlinear σ-Models

S. Hellerman, J. Kehayias, T. T. Yanagida

Physics Letters B 731 (2014) pp. 148–153. 2014. arXiv: 1312.6889 (hep-th)

Charge Quantization in the $\mathbb{CP}(1)$ Nonlinear Sigma-Model

S. Hellerman, J. Kehayias, T. T. Yanagida

Physics Letters B 728 (2014) pp. 358–362. 2014. arXiv: 1309.0692 (hep-th)

Quantum Instability of the Emergent Universe

A. Aguirre, J. Kehayias

Phys.Rev. D88 (2013) p. 103504. 2013. arXiv: 1306.3232 (hep-th)

Non-Anomalous Discrete R-symmetry Decrees Three Generations

J. L. Evans, M. Ibe, J. Kehayias, T. T. Yanagida

Phys.Rev.Lett. 109 (2012) p. 181801. 2012. arXiv: 1111.2481 (hep-ph)

Fuzzy Geometry via the Spinor Bundle, with Applications to Holographic Space-time and Matrix Theory

T. Banks, J. Kehayias

Phys. Rev. D84 (2011) p. 086008. 2011. arXiv: 1106.1179 (hep-th)

Axions in the Landscape and String Theory

M. Dine, G. Festuccia, J. Kehayias, W. Wu

JHEP 01 (2011) p. 012. 2011. arXiv: 1010.4803 (hep-th)

Generalized Gaugino Condensation in Super Yang-Mills Theories: Discrete R-Symmetries and Vacua

J. Kehayias

Phys. Rev. D82 (2010) p. 125041. 2010. arXiv: 1005.4686 (hep-th)

Semi-Analytic Calculation of the Gravitational Wave Signal From the Electroweak Phase Transition for General Quartic Scalar Effective Potentials

J. Kehayias, S. Profumo

JCAP 1003 (2010) p. 003. 2010. arXiv: 0911.0687 (hep-ph)

Discrete R Symmetries and Low Energy Supersymmetry

M. Dine, J. Kehayias

Phys. Rev. D82 (2010) p. 055014. 2010. arXiv: 0909.1615 (hep-ph)

Gamma Rays from Clusters and Groups of Galaxies: Cosmic Rays versus Dark Matter

T. E. Jeltema, J. Kehayias, S. Profumo

Phys. Rev. D80 (2009) p. 023005. 2009. arXiv: 0812.0597 (astro-ph)

Conference Proceedings

Recent work on gravitational waves from a generic standard model-like effective Higgs potential

J. Kehayias

Nucl. Phys. Proc. Suppl. 192-193 (2009) pp. 152–153. 2009. arXiv: 0912.0007 (hep-ph)

Talks

Invited Talks

Brown Bag Seminar — *Michigan Center for Theoretical Physics (MCTP), University of Michigan*

"Theory and Applications of Nonlinear Sigma Models" — *October 28, 2015*

Theory Symposium, Santa Cruz Institute for Particle Physics (SCIPP) Reunion and 35th Anniversary Celebration — *University of California, Santa Cruz*

"Nonlinear Sigma Models for Fun and Profit" — *April 24, 2015*

High Energy Theory Seminar — *William I. Fine Theoretical Physics Institute (FTPI), University of Minnesota*

"Charge Quantization and the Standard Model from Nonlinear Sigma Models" — *March 27, 2014*

Theory Group Seminars — *United States, Japan, Canada*

"No GUTs, All Glory: Charge Quantization from Nonlinear Sigma Models" — *September–December 2013*

UC Berkeley/LBL, Columbia University, YITP/Stony Brook University, NYU, UC Irvine, UC Santa Cruz, University of Tokyo (Komaba), Perimeter Institute

Research Center for the Early Universe (RESCEU Group) Seminar — *The University of Tokyo, Sendai*

"Quantum Instability of the Emergent Universe" — *December 3, 2012*

Particle and Cosmology Group Seminar — *Tohoku University, Sendai, Japan*

"Discrete R-symmetries, Generalized Gaugino Condensation, and Three Generations" — *December 1, 2011*

ACP Seminar — *Kavli IPMU, University of Tokyo (WPI)*

"Discrete R-Symmetries and Generalized Gaugino Condensation (and Three Generations)" — *November 24, 2011*

Conferences

Conference on Community Writing — *Philadelphia, PA*

"Now You've Built It, But Will They Come?: Developing a New Community Writing Program in and around Philadelphia" (Roundtable discussion) — *October 17–19, 2019*

Presentation and discussion on a community writing program with the Free Library of Philadelphia, presented with colleagues from the Critical Writing Program and Free Library.

Rencontres de Moriond: Cosmology 2016 — *La Thuile, Aosta Valley, Italy*

"Static and Oscillating Universes" (Poster) — *August 19–26, 2016*

Miami 2015 Conference, a topical conference on elementary particles, astrophysics, and cosmology — *Fort Lauderdale, Florida, United States*

"Fast Radio Transients" — *December 16–22, 2015*

SUSY 2015, 23rd International Conference on Supersymmetry and Unification of Fundamental Interactions — *Lake Tahoe, California, United States*

"Light Fields and Flat Directions from Nonlinear Sigma Models in Supergravity" — *August 23–29, 2015*

Miami 2014 Conference, a topical conference on elementary particles, astrophysics, and cosmology — *Fort Lauderdale, Florida, United States*

"Chaotic Inflation from Nonlinear Sigma Models in Supergravity" — *December 17–23, 2014*

SI 2014, 20th International Summer Institute on Phenomenology of Elementary Particles and Cosmology — *Fuji-Yoshida, Japan*

"Chaotic Inflation and a Light Higgs in Supergravity" — *December 17–23, 2014*

SUSY 2013, 21st International Conference on Supersymmetry and Unification of Fundamental Interactions — *ICTP, Trieste, Italy*

"No GUTs, All Glory: Charge Quantization from Nonlinear Sigma Models" — *August 26–31, 2013*

MCCQG, 2nd Mediterranean Conference on Classical and Quantum Gravity — *Veli Lošinj, Croatia*

"Quantum Instability of the Emergent Universe" — *June 9–15, 2013*

SUSY 2012, 20th International Conference on Supersymmetry and Unification of Fundamental Interactions — *Peking University, Beijing, China*

"Three Generations From a Non-Anomalous Discrete R-Symmetry" — *August 13–18, 2012*

SUSY 2010, 18th International Conference on Supersymmetry and Unification of Fundamental Interactions — *Physikalisches Institut, Bonn, Germany*

"Generalized Gaugino Condensation and Discrete R-Symmetries" — *August 23–28, 2010*

Skills

Programming	Python, C/C++, Common Lisp, Java, LaTeX
Physics/Math Software	Wolfram Mathematica, ROOT, gnuplot
Other Applications	Common word processing, spreadsheet, and presentation software; Adobe Lightroom and Photoshop, Darktable