Nicholas S. Kern

Contact Information

UC Berkeley Astronomy Department
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Education

University of California, Berkeley — August 2015 – present
Pursuing a Ph.D. in Astronomy, expected 2021
M.A. in Astronomy — May, 2017

University of Michigan, Ann Arbor — May 2015
B.S. in Physics and B.S. in Astronomy & Astrophysics

Research Focus

I explore the frontiers of the distant universe through radio frequency observations of primordial hydrogen. My research connects these observations to cosmological models to learn about how the first generation of stars and galaxies formed and how this was tied to the large-scale structure of the universe.

First and Second Author Publications

1. **Kern, N.**, Liu, A., Parsons, A. R., Mesinger, A., & Greig, B. (2017) *Emulating Simulations of Cosmic Dawn for 21cm Power Spectrum Constraints on Cosmology, Reionization, and X-Ray Heating*, ApJ 848 23
2. Gifford, D., **Kern, N.**, & Miller, C. (2016) *Stacking Caustic Masses from Galaxy Clusters*, ApJ 834 204
3. **Kern, N. S.**, Keown, J. A., Tobin, J. J., Mead, A., & Gutermuth, R. (2016) *Radio Properties of Young Stellar Objects in the Serpens South Infrared Dark Cloud*, AJ 151 42

Publications as a Significant Contributor

1. Miller, C. J., Stark, A., Gifford D., & **Kern, N.** (2016) *Inferring Gravitational Potentials from Mass Densities in Cluster-Sized Halos*, ApJ 822 41
2. Stark, A., Miller, C. J., **Kern, N.**, Gifford, D., et al. (2016) *Probing Theories of Gravity with Phase Space-Inferred Potentials of Galaxy Clusters*, Phys. Rev. D 93, 084036
3. Gifford, D., Miller, C. J., & **Kern, N.** (2013) ApJ, 773, 116: *A Systematic Analysis of Caustic Methods for Galaxy Cluster Masses*, ApJ 773 116

Honors & Awards

Teaching Effectiveness Award, UC Berkeley	2017
Outstanding Graduate Student Instructor Award, UC Berkeley	2017
Graduated with Highest Honors and Distinction, University of Michigan	2015
Excellence in Astrophysics Research Award, University of Michigan	2015
Foreign Language & Area Studies (FLAS) Fellow, University of Michigan	2014
International Institute Fellow, University of Michigan	2014
Upper-Level Writing Prize in the Natural Sciences, University of Michigan	2014

Teaching Experience

UC Berkeley, Department of Astronomy

Head Instructor

- Astro 9: Python Programming in Astronomy — Summer 2017

Graduate Student Instructor

- Astro 7A: Introduction to Astrophysics — Fall 2016
- Astro 160: Stellar Structure & Evolution — Fall 2015

University of Michigan, Department of Physics
Undergraduate Learning Assistant
- Physics 140: Introduction to Mechanics — Spring 2015

Talks and Presentations

BCCP Cosmology Workshop, Invited Talk — January 2018
University of California Berkeley, Berkeley, CA

JILA Astrophysics Seminar, Invited Talk — October 2017
University of Colorado, Boulder, CO

NASA Machine Learning Workshop, Invited Talk — August 2017
NASA Ames, Mountain View, CA

Science at Low Frequencies III, Contributed Talk — December 2016
California Institute of Technology, Pasadena, CA

225th American Astronomical Society Meeting, Contributed Poster — January 2015
Seattle, WA

Astronomy Undergraduate Research Session, Contributed Poster — April 2014
University of Michigan, Ann Arbor, MI

223rd American Astronomical Society Meeting, Contributed Poster — January 2014
Washington, D.C.

Cyber Infrastructure Days, Contributed Poster — November 2013
University of Michigan, Ann Arbor, MI