

JEFFREY P. FILIPPINI

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RESEARCH INTERESTS

Astrophysical probes of fundamental physics, observational cosmology, particle astrophysics, cosmic microwave background, dark matter, sub-kelvin detectors, superconducting electronics

EDUCATION

- 2008 Ph.D. Physics, University of California, Berkeley
Dissertation: "A search for WIMP dark matter using the first five-tower run of the Cryogenic Dark Matter Search"; Advisor: Bernard Sadoulet
- 2004 M.A. Physics, University of California, Berkeley
- 2002 A.B. Chemistry and Physics, *summa cum laude*, Phi Beta Kappa, Harvard University

PROFESSIONAL APPOINTMENTS

- Dec. 2014 – *date*
Assistant Professor, Department of Physics, University of Illinois at Urbana-Champaign
Faculty Affiliate, Department of Astronomy, University of Illinois at Urbana-Champaign
- Dec. 2011 – Nov. 2014
Robinson Postdoctoral Scholar in Experimental Astrophysics, Caltech
- Dec. 2008 – Nov. 2011
Moore Prize Postdoctoral Scholar in Experimental Physics, Caltech
- Jan. 2003 – Dec. 2008
Graduate Student Researcher, University of California, Berkeley
- Aug. 2002 – Dec. 2002
Graduate Student Instructor, University of California, Berkeley

AWARDS, ACHIEVEMENTS, AND RECOGNITION

- 2018-19 Fellow in the Center for Advanced Study (CAS), UIUC
- 2015-16 Collins Scholar, UIUC Academy for Excellence in Engineering Education
- 2015 Antarctic Service Medal
- 2002-5 National Defense Science and Engineering Graduate Fellowship (NDSEG)
- 1997 U.S. National Chemistry Olympiad – National Finalist (*20 in nation*)

RESEARCH COLLABORATIONS

- SPIDER (*NASA*), balloon-borne CMB polarimeter, 2008 – date
- BICEP (*NSF*), series of five South Pole CMB polarimeters, 2008 – date
- CMB Stage IV (*DOE*), ground-based CMB, technical development, 2015 – date
- Inflation Probe (*NASA*), CMB satellite, technical development, 2015 – date
- Cryogenic Dark Matter Search [CDMS II] (*NSF/DOE*), 2003 – 2011
- Super-Kamiokande, proton decay and neutrinos, 2002
- MINOS, neutrino oscillation experiment, 2002

TEACHING (* = ranked as excellent by student evaluations)

- Physics 150: Physics for Future Leaders (F17, S17, F16)
- Physics 211: University Physics: Mechanics (S15*)
- Physics 213/4: University Physics: Thermal Physics / Quantum Physics (S18, S16*)

RESEARCH ADVISING

Postdoctoral: Dr. Riccardo Gualtieri (*Ph.D. 2015, Roma-Sapienza*)

Graduate: Asad Khan, Benjamin Osherson, Elle Shaw

Undergraduate: Jianyang Fu '18, Derek Glennon '18, Robert Gramillano '16, Harshil Kamdar '16 (*now Ph.D. student Harvard*), Alex Navarre '18, Aaron Smothers '18

REU: Bryan Hendricks (*Illinois Institute of Technology*), Emma Western (*U. of St. Thomas, now Ph.D. student LSU*)

CAMPUS SERVICE

Physics Faculty Advisory Committee, 2017-19

ARISE mentor, College of Engineering, 2017-18

Faculty advisor, Society of Physics Students, 2017-18

Astrophysics, Cosmology, and Gravitation seminar organizer, 2015-17

SELECTED OUTREACH ACTIVITIES

Astronomy on Tap Champaign-Urbana, monthly public science conversations, 2016 – date

Advisory board member, presenter, frequent host

WCIA3 Whys Guys, weekly televised science segment (3 faculty), 2017 – date

UI physics Dark Matter Day video, organizer/contributor, Oct. 31, 2017

Saturday Physics for Everyone, “The Hidden Universe”, Nov. 5, 2016

SELECTED FUNDED GRANTS

NASA Astrophysics Research and Analysis (APRA) Co-I 2017-19

“SPIDER: Probing the Early Universe with a Large-Scale CMB Polarization Survey”

NASA Strategic Astrophysics Technology (SAT) Co-I 2016-17

“Superconducting Antenna-Coupled Detectors and Readouts for Space-Borne CMB Polarimetry”.

NASA Strategic Astrophysics Technology (SAT) Co-I 2018-19

“Superconducting Antenna-Coupled Detectors for CMB Polarimetry with the Inflation Probe”.

SELECTED PUBLICATIONS

42 peer-reviewed, 3 in review, 41 others; 8285 citations (Google Scholar)

Note: Alphabetical author order is typical for refereed papers among my collaborators

J.M. Nagy *et al.*, “A New Limit on CMB Circular Polarization from SPIDER”, *Astrophysical Journal* 844, 151 (2017)

P.A.R. Ade *et al.*, “Improved Constraints on Cosmology and Foregrounds from BICEP2 and Keck Array Cosmic Microwave Background Data with Inclusion of 95 GHz Band”, *Physical Review Letters* 116, 031302 (2016)

P.A.R. Ade *et al.*, “Detection of B-mode Polarization at Degree Angular Scales by BICEP2,” *Physical Review Letters* 112, 241101 (2014)

Z. Ahmed *et al.*, “Dark matter search results from the CDMS II experiment,” *Science* 327, p. 1619 (2010)

Z. Ahmed *et al.*, “Search for Weakly Interacting Massive Particles with the First Five-Tower Data from the Cryogenic Dark Matter Search at the Soudan Underground Laboratory,” *Physical Review Letters* 102, 011301 (2009)

D.S. Akerib *et al.*, “Limits on spin-dependent WIMP-nucleon interactions from the Cryogenic Dark Matter Search,” *Physical Review D* 73, 011102 (2006)