

Christina Krawiec

Ph.D. Candidate, Physics
University of Pennsylvania

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Education

University of Pennsylvania
Ph.D, expected August 2018

Rutgers, The State University of New Jersey
B.S., Astrophysics, 2013.
History Minor

Research

Dept of Physics & Astronomy, University of Pennsylvania

Ph.D. Research, 2013-Present

Advised by Gary Bernstein

Project: Measuring gravitational lensing magnification of Lyman Break Galaxies in the Dark Energy Survey Year 1 data using new Bayesian method for source selection.

Project: Created pixelated galaxy simulations in Python for testing shear measurement code.

Project: Performed shake analysis to determine impact of wind on Dark Energy Survey image ellipticities by syncing raw anemometer and accelerometer data.

Dept of Physics & Astronomy, Rutgers University

Advised by Chuck Keeton

Honors Thesis, 2012-2013

Analysed Fermi-LAT GRB energy spectra to assess the feasibility of measuring primordial black hole lensing using bursts.

Research Assistant, Summer 2011

Modeled gravitational lensing of planetesimals around their host star.

Aresty Summer Program, Summer 2010

Modeled lensing effects of clumpy dark matter to predict minimum detectable clump mass.

Dept of Astrophysics, American Museum of Natural History

Research Experience for Undergraduates, Summer 2012

Advised by Sebastien Lepine

Selected candidates from white dwarf catalog for possible brown or red dwarf companions using the SUPERBLINK catalog and WISE magnitudes.

Conferences and Workshops

American Astronomical Society 229th Meeting, 2017

AAS Astronomy Ambassador Workshop

Learned science education and communication skills. Practiced presenting research to the public. Permanent status as "AAS Astronomy Ambassador."

American Astronomical Society 221st Meeting, 2013

Poster: "A WISE Search for Brown Dwarf Companions to 4,000 Nearby White Dwarfs from the SUPERBLINK Proper Motion Survey," **Christina Krawiec**, Sebastien Lepine

Teaching

Physics, University of Pennsylvania

Teaching Assistant, Physics 151 (Lab), Fall 2013

Teaching Assistant, Physics 152 (Lab), Spring 2014

Publications

Astronomers' and Physicists' Attitudes Towards Education & Public Outreach: A Case Study with The Dark Energy Survey

A. Farahi, R. R. Gupta, **C. Krawiec**, A. A. Plazas, R. C. Wolf, 2018, preprint, arXiv:1805.04034

Dark Energy Survey Year 1 Results: Cosmological Constraints from Cosmic Shear

M. A. Troxel, et al., 2017, preprint, arXiv:1708.01538

Dark Energy Survey Year 1 Results: Weak Lensing Shape Catalogues

J. Zuntz, et al., 2017, preprint, arXiv:1708.01533

Dark Energy Survey Year 1 Results: Cosmological Constraints from Galaxy Clustering and Weak Lensing

T. M. C. Abbott, et al., 2017, preprint, arXiv:1708.01530

An Accurate and Practical Method for Inference of Weak Gravitational Lensing from Galaxy Images

Gary M. Bernstein, Robert Armstrong, **Christina Krawiec**, and Marisa C. March, 2016 MNRAS 459, 4467-4484

Education and Public Outreach

STEMCityPHL Tech Camp Mentor, Feb-Apr, 2018

Coached students on coding and web design at School of the Future in Philadelphia.

Science Fair Judge

Penn Alexander School, Dec 12, 2017.

George Carver Science Fair, the Academy of Natural Sciences, Feb 21, 2018.

The Franklin Institute Discovery Camp, Summers 2015-Present

Presenting science through designing and leading activities with K-12 students during weekly visits to the summer camp.

Philadelphia Science Festival, 2015-Present

Design and perform demonstrations and activities for all ages at several events during the week-long annual citywide event.

Penn Education & Public Outreach in Physics & Astronomy (PEPOPA)

Social Media Manager, 2015-Present

Regularly post to Penn Physics & Astronomy's Facebook, Twitter, and Youtube pages. This includes relevant articles, event promotion, and photos and videos from public appearances.

Science After Hours Liaison, 2017

Organize demonstrations, materials, and volunteers for Penn Physics at the Franklin Institute's monthly age 21+ event.

Aresty Research Program, Rutgers University, 2012-2013

Peer Advisor

Held weekly meetings with a group of research assistants in the program. Provided resources and guidance leading up to their poster presentations at the end of the academic year.

SAS Honors Program, Rutgers University, 2010-2012

Volunteer Tutor

Provided hour-long tutoring sessions to my peers in Physics and Calculus several times a week.

Media
Projects

**Graphics Manager and Museum Liaison, Dark Energy Survey
2015-Present**

Video Series: "Ask DES: The People Behind the Papers,"' 2017

Filmed scientists answering questions received from the public. Edited and posted to Facebook, YouTube, and Twitter as part of the DES Year 1 Cosmology Release on August 3rd, 2017.

Digital Calendars 2016, 2017

Created PDF calendars for the Dark Energy Survey Collaboration. Designed using a third-party GIMP Python macro and edited in GIMP and OpenOffice.

Promotional Stickers, 2015

Designed and ordered 6-inch stickers to promote the Dark Energy Survey. They were distributed to collaboration members.

Awards and
Scholarships

Herman Y. Carr Scholarship

Rutgers University, 2012

Noemie B. Koller Scholarship

Rutgers University, 2011

Technical
Skills

C/C++, Python, SQL, Java, IDL, \LaTeX

GIMP, Pixelmator, iMovie

Google Drive, Google Apps, Microsoft Office, OpenOffice