

Kara A. Ponder

Curriculum Vitae

Berkeley Center for Cosmological Physics
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RESEARCH INTERESTS

Dark Energy, Supernova Cosmology, Statistical Methods.

Employment

Sept 2017– **Berkeley Center for Cosmological Physics Computational Data Science Fellow**, *Department of Physics*, University of California, Berkeley.

Education

- 2012–2017 **Ph.D. Physics**, *Department of Physics and Astronomy*, University of Pittsburgh, Pittsburgh, PA, USA.
Advisors: Professors Michael Wood-Vasey and Andrew Zentner
- 2012–2014 **M.S. Physics**, *Department of Physics and Astronomy*, University of Pittsburgh, Pittsburgh, PA, USA.
- 2009–2012 **B.S. Physics and Astronomy**, *Department of Physics and Astronomy*, University of Georgia, Athens, GA, USA.

AWARDS AND FELLOWSHIPS

- 2017 **LSST Dark Energy Science Collaboration (DESC) Travel grant.**
DESC Collaboration Meeting at SLAC National Accelerator Laboratory, Menlo Park, CA
- 2016 **University of Pittsburgh School of Arts & Sciences Fellowship**, *For Fall 2016 and Summer 2017.*
Pitt PACC, Department of Physics and Astronomy - University of Pittsburgh
- 2016 **LSST DESC Travel grant.**
DESC Collaboration Meeting in Oxford, England, UK
- 2016 **Supernova Through the Ages: Understanding the Past to Prepare for the Future (SN2016) Conference Student Travel grant.**
SN2016 Conference, Easter Island, Chile
- 2016 **Pittsburgh Particle physics, Astrophysics, Cosmology Center Travel Grant**, SN2016 Conference, Easter Island, Chile.
Pitt PACC, Department of Physics and Astronomy - University of Pittsburgh
- 2016 **LSST DESC Travel grant.**
DESC Collaboration Meeting at SLAC National Accelerator Laboratory, Menlo Park, CA
- 2015 **Zaccheus Daniels Fellowship**, *For Summer 2016.*
Department of Physics and Astronomy - University of Pittsburgh
- 2014 **Department of Energy (DOE) Office of Science Graduate Student Research (SCGSR) Awardee.**
Department of Energy, Office of Science

- 2014 **Physics and Astronomy Departmental Fellowship**, *For Spring and partial Summer 2015*.
Department of Physics and Astronomy - University of Pittsburgh
- 2012 **Kenneth P. Dietrich School of Arts & Sciences Fellowship**, *For Spring and Summer 2013*.
Kenneth P. Dietrich School of Arts & Sciences - University of Pittsburgh
- 2012 **Physics and Astronomy Award**.
Department of Physics and Astronomy - University of Georgia
- 2011 **Linville L. Hendren Memorial Scholarship for Outstanding Proficiency in Physics**.
Department of Physics and Astronomy - University of Georgia

COLLABORATIONS

- March 2014 - **Large Synoptic Survey Telescope Dark Energy Science Collaboration (LSST DESC)**.
Present Member of Supernova Working Group
Member of Collaboration Council: November 2015-2017
- Feb 2014 - **Sloan Digital Sky Survey (SDSS) III and IV**.
Present SDSS III replaced by SDSS IV in June 2014
Officially Joined SDSS IV in March 2016

Accepted Proposals

- Spring/Summer 2017 **VLT 8.2 m**, 99 hours in Period 99, Multi Unit Spectroscopic Explorer (MUSE): Optical IFS.
All-weather MUSE Supernova Integral field Nearby Galaxies (AMUSING) survey IV
PI: Lluís Galbany, Col: KAP
- Fall 2016 **VLT 8.2 m**, 45 hours in Period 98, Multi Unit Spectroscopic Explorer (MUSE): Optical IFS.
All-weather MUSE Supernova Integral field Nearby Galaxies (AMUSING) survey IV
PI: Lluís Galbany, Col: KAP
- Fall 2016 **Calar Alto 3.5 m**, Backup targets in service mode, Potsdam MultiAperture Spectrophotometer (PMAS): Optical IFS.
PI: Lluís Galbany, Col: KAP
- Fall 2015 **WIYN 3.5 m**, 4 nights, Proposal ID: 2015B-0347, WHIRC: NIR imaging camera and HexPak: optical IFU mounted on bench spectrograph.
SweetSpot Survey
PI: W. Michael Wood-Vasey, Col: KAP

Experience

- Aug 2016-Aug 2017 **Co-President of the Association of Physics and Astronomy Graduate Students**.
Graduate Student Organization for the Department of Physics and Astronomy at the University of Pittsburgh

Observing

- Oct 2016 **Magellan 6.5 m**, 3 telescope nights, Low Dispersion Survey Spectrograph 3 (LDSS-3): Slit spectrograph in Optical and Folded-port InfraRed Echellette (FIRE): Echelle mode NIR spectrograph.
- Nov 2013 - May 2017 **WIYN 3.5 m**, 59.5 telescope nights, WHIRC: NIR imaging camera.
SweetSpot survey (PI: W. Michael Wood-Vasey, Col: KAP)
- Nov 2015 **WIYN 3.5 m**, 2 telescope nights, HexPak: integral field unit mounted on bench spectrograph.
SweetSpot survey follow up (PI: W. Michael Wood-Vasey, Col: KAP)
- May 2014 **Bok 2.3 m**, 4.5 telescope nights, 90prime: optical imaging camera.
Reverberation Mapping project in SDSS III

Additional Research

- Jan - June 2015 **Visiting student at the SLAC National Accelerator Laboratory.**
Funded through DOE SCGSR
- June - Aug 2011 **Research Experience for Undergraduates (REU)**, Purdue University.
Simulated different alignments to optimize the Very Energetic Radiation Imaging Telescope Array System (VERITAS)
Advisors: Professor John Finley and Dr. Glenn Sembroski
- Jan - May 2011 **Undergraduate Researcher**, University of Georgia.
Simulations of High Velocity Cloud Mixing with the Milky Way Halo
Advisor: Professor Robin Shelton
Publication from work: 'Mixing between High Velocity Clouds and the Galactic Halo'
Gritton, Jeffrey A., Shelton, Robin L., Kwak, Kyujin, The Astrophysical Journal, Volume 795, Issue 1, article id. 99, 9 pp. (2014)
- Teaching**
- Aug - Dec 2012 **Teaching Assistant**, *Department of Physics and Astronomy*, University of Pittsburgh.
Course: Astronomy 0089

CONFERENCES AND TALKS

- April 2018 **"SweetSpot Survey: Overview and Early Results"**, Invited Plenary Talk.
New Advances in NIR type Ia Supernova Science Workshop, Pittsburgh, PA
- March 2018 **"Are Type Ia Supernovae in Restframe H-band Brighter in More Massive Galaxies?"**, Invited Talk.
Cosmology and Astronomy Seminar, UC Davis, Davis, CA
- Feb 2018 **"Utilizing SweetSpot Host Galaxies for LSST"**, Contributed Talk.
LSST DESC Collaboration Meeting, SLAC National Accelerator Lab, Menlo Park, CA
- Nov 2016 **"Utilizing SweetSpot Host Galaxies for LSST"**, Contributed Plenary Talk.
Preparing for SN science in the LSST era: A kick-off workshop, University of Pittsburgh, Pittsburgh, PA
- Aug 2016 **"SweetSpot: A Near Infrared Survey of Type Ia Supernovae in the Nearby Hubble Flow"**, Contributed Plenary Talk.
Supernova Through the Ages: Understanding the Past to Prepare for the Future, Easter Island, Chile
- June 2015 **"SweetSpot: Data Release 1 and IFU Spectroscopy of 32 Host Galaxies"**, *K. A. Ponder, W. M. Wood-Vasey, A. Weyant, L. Allen, P. M. Garnavich, S. W. Jha, R. R. Joyce, T. Matheson, A. Rest*, Poster.
American Astronomical Society Meeting 228, San Diego, CA
- May 2016 **"SweetSpot: NOAO Near-Infrared Survey of Type Ia Supernovae in the Nearby Hubble Flow"**.
NOAO FLASH talk, National Optical Astronomy Observatory, Tucson, AZ
- Aug 2015 **"SweetSpot Data Release 1: 70 Type Ia Supernovae in the Near Infrared in the Nearby Hubble Flow"**, *K. A. Ponder, W. M. Wood-Vasey, A. Weyant, L. Allen, N. T. Barton, P. M. Garnavich, N. Jahan, S. W. Jha, R. R. Joyce, T. Matheson, A. Rest*, Poster.
The iPTF Summer School, California Institute of Technology, Pasadena, CA
- July 2015 **"Accounting for Multiple Populations of Type Ia Supernovae"**, Contributed Talk.
Santa Fe Cosmology Workshops, St. John's College, Santa Fe, NM
- May 2015 **"Incorporating Astrophysical Systematics into a Generalized Likelihood"**, Invited Talk.
KIPAC Tea Talk, SLAC National Accelerator Lab, Menlo Park, CA
- March 2015 **"Incorporating Astrophysical Systematics into a Generalized Likelihood"**, Invited Talk.
Supernova at SLAC Meeting - SLAC National Accelerator Lab, Menlo Park, CA

- Feb 2015 **“Incorporating Astrophysical Systematics into a Generalized Likelihood”**, Contributed Talk.
LSST DESC Collaboration Meeting, SLAC National Accelerator Lab, Menlo Park, CA
- Jan 2015 **“SweetSpot Data Release 1: 70 Type Ia Supernovae in the Near Infrared in the Nearby Hubble Flow”**, Wood-Vasey, W. Michael; Weyant, Anja; Allen, Lori; Trevino Barton, Nathan; Garnavich, Peter M.; Farhin Jahan, Nabila; Jha, Saurabh; Kroboth, Jessica Rose; Ponder, Kara Ann; Joyce, Richard R.; Matheson, Thomas; Rest, Armin, Poster, Presented by W. Michael Wood-Vasey.
American Astronomical Society Meeting 225, Seattle, WA
- Oct 2014 **“Incorporating Astrophysical Systematics into a Generalized Likelihood”**, Invited Talk.
CMU Astrostatistics meeting, Carnegie Mellon University, Pittsburgh, PA
- June 2014 **“SweetSpot Data Release 1: 70 Type Ia Supernovae in the Near Infrared in the Nearby Hubble Flow”**, Wood-Vasey, W. Michael; Weyant, Anja; Allen, Lori; Garnavich, Peter M.; Jahan, Nabila; Jha, Saurabh; Ponder, Kara A; Joyce, Richard R.; Matheson, Thomas; Rest, Armin, Poster, Presented by W. Michael Wood-Vasey.
American Astronomical Society Meeting 224, Boston, MA
- April 2014 **“Incorporating Astrophysical Systematics into a Generalized Likelihood”**, Contributed Talk.
Neighborhood Workshop on Astrophysics and Cosmology. Pennsylvania State University, State College, PA
- Aug 2011 **“VERITAS Simulations”**, Contributed Talk.
REU Final Project Presentations - Purdue University, West Lafayette, IN
- May 2011 **“The Mixing of High Velocity Clouds”**, Invited Talk.
Undergraduate Award's Day Colloquium - University of Georgia, Athens, GA
- Public Lectures**
- Jan 2017 **“Exploring Dark Energy with the Large Synoptic Survey Telescope”**.
Allegheny Observatory Public Lecture Series, Pittsburgh, PA

PUBLICATIONS

- July 2016 **Ponder, K. A., Wood-Vasey, W.M., Zentner, A.**, *“Incorporating Astrophysical Systematics into a Generalized Likelihood for Cosmology with Type Ia Supernova”*, The Astrophysical Journal, Volume 825, Issue 1, article id. 35, arXiv:1511.04647.
- May 2018 **Weyant, A., Wood-Vasey W. M. , Joyce, R., Allen, L. , Garnavich, P. , Jha S.W., Kroboth, J.R., Matheson, T., Ponder, K.A.**, *“The First Data Release from SweetSpot: 74 Supernovae in 36 Nights on WIYN+WHIRC”*, The Astronomical Journal, Volume 155, Issue 5, article id. 201, arXiv:1703.02402.
- Feb 2018 **L. Galbany, J. P. Anderson, 17 more authors including K. A. Ponder**, *“PISCO: The Pmas/ppak Integral-field Supernova hosts Compilation”*, The Astrophysical Journal, Volume 855, Issue 2, article id. 107, arXiv:1802.01589.
- Dec 2017 **Sloan Digital Sky Survey - Reverberation Mapping Project (39 authors including Kara A. Ponder)**, *“The Sloan Digital Sky Survey Reverberation Mapping Project: H α and H β Reverberation Measurements From First-Year Spectroscopy and Photometry”*, The Astrophysical Journal, Volume 851, Issue 1, article id. 21, arXiv:1711.03114.
- Nov 2017 **Shivvers, I., Zheng. W., 25 more authors including Kara A. Ponder**, *“The Nearby Type Ibn Supernova 2015G: Signatures of Asymmetry and Progenitor Constraints”*, Monthly Notices of the Royal Astronomical Society, Volume 471, p. 4381–4397, arXiv:1704.04316.
- Aug 2017 **LSST Science Collaborations (104 authors including Kara A. Ponder)**, *“Science-Driven Optimization of the LSST Observing Strategy”*, arXiv:1708.04058.

Nov 2016 **Galbany, L., D'Andrea, C., Prajs, S., Smith, M., Sullivan, M., Ponder, K., and 46 other authors**, "*Classification of DES16C2nm as a SLSN at $z=1.998$* ", The Astronomer's Telegram, Volume 9700.

Jan 2015 **Sloan Digital Sky Survey III- Reverberation Mapping Project (39 authors including Kara Ponder)**, "*The Sloan Digital Sky Survey Reverberation Mapping Project: Technical Overview*", Astrophysical Journal Supplement, Volume 216, Issue 1, article id. 4.

Published Abstracts

June 2016 **Ponder K. A., Wood-Vasey W. M. , Weyant A., Allen L., Garnavich P. M., Jha S.W., Joyce R. R., Matheson T., Rest A.**, "*IFU Spectroscopy of 32 SweetSpot Supernova Host Galaxies*", American Astronomical Society Meeting Abstracts 228.

Electronic Records

Click for
hyperlink: **Google Scholar, inSPIRE HEP, Research Gate, LinkedIn.**

REFERENCES

Prof. Michael Wood-Vasey, email: wmwv@pitt.edu.

Prof. Andrew Zentner, email: zentner@pitt.edu.

Prof. Saurabh Jha, email: saurabh@physics.rutgers.edu.