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

Sept 2017 - Present	**The Nearby Supernova Factory**.
March 2014 - Present	**Large Synoptic Survey Telescope Dark Energy Science Collaboration (LSST DESC)**. Member of Supernova Working Group Member of Collaboration Council: November 2015-2017, 2018-2020
Feb 2014 - 2017	**Sloan Digital Sky Survey (SDSS) III and IV**. 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, CoI: KAP
Fall 2016/Spring 2017	**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, CoI: KAP
Fall 2016	**Calar Alto 3.5 m**, Backup targets in service mode, Potsdam MultiAperture Spectrophotometer (PMAS): Optical IFS. PI: Lluís Galbany, CoI: 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, CoI: KAP

Experience

Feb 2019-	**Referee for Physics Review D**.
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, CoI: 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, CoI: KAP)

May 2014	**Bok 2.3 m**, 4.5 telescope nights, 90prime: optical imaging camera.
	Reverberation Mapping project in SDSS III

Organized Conferences

Feb 2019	**LSST DESC Winter Meeting**, *LOC*, Berkeley, CA.
Feb 2019	**LSST DESC Broker Workshop**, *LOC*, Berkeley, CA.
April 2018	**New advances in NIR type Ia supernova science**, *SOC*, Pittsburgh, PA.
Nov 2016	**Preparing for SN science in the LSST era: A kick-off workshop**, *LOC*, Pittsburgh, PA.

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

Jan 2019	**"Validating the PLAsTiCC Simulations"**, *Kara Ponder for the PLAsTiCC Team*, Contributed Talk. American Astronomical Society Meeting 233, Seattle, WA
Jan 2019	**"The Photometric LSST Astronomical Time Series Classification Challenge (PLAsTiCC)"**, *Hlozek, R., Kessler, R., and 23 other authors including K. Ponder*, Poster. American Astronomical Society Meeting 233, Seattle, WA
Jan 2019	**"Survey Statistics for the Nearby Supernova Factory Data Release"**, *K. A. Ponder, Nearby Supernova Factory*, Poster. American Astronomical Society Meeting 233, Seattle, WA
June 2018	**"The Nearby Supernova Factory: Efforts in Optimization and Visualization"**, Contributed Plenary Talk. Data Visualization and Exploration in the LSST Era, University of Illinois at Urbana-Champaign, IL
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.

Mar 2019 **Kessler R., Narayan G., and 27 other individual authors including Ponder, K. A.**, *"Models and Simulations for the Photometric LSST Astronomical Time Series Classification Challenge (PLAsTiCC)"*, arXiv:1903.11756.

Oct 2018 **The PLAsTiCC team, LSST DESC, LSST TVS, and 22 individual authors including Ponder, K.**, *"The Photometric LSST Astronomical Time-series Classification Challenge (PLAsTiCC): Data set"*, arXiv:1810.00001.

Sept 2018 **Malz, A., Hložek, R., and 20 other authors including Ponder, K., LSST DESC, LSST TVS**, *"The Photometric LSST Astronomical Time-series Classification Challenge (PLAsTiCC): Selection of a performance metric for classification probabilities balancing diverse science goals"*, Submitted, arXiv:1809.11145.

Aug 2018 **Holoien, T. W.-S., Huber, M. E., Shappee, B. J., and 35 other authors including Ponder, K.A.**, *"PS18kh: A New Tidal Disruption Event with a Non-Axisymmetric Accretion Disk"*, Submitted to ApJ, arXiv:1808.02890.

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: $H\alpha$ and $H\beta$ 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.

Electronic Records

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

REFERENCES

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

Andrew Zentner, email: zentner@pitt.edu.

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

Saul Perlmutter, email: saul@lbl.gov.
Greg Aldering, email: galdering@lbl.gov.