

Steward Observatory  
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## EMPLOYMENT

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|-----------------------|--|
| Since Aug '18         | <b>Assistant Professor of Astronomy</b> , University of Arizona  |
| April '14 – Aug '18   | <b>Staff Scientist (Level III)</b> , NASA-Jet Propulsion<br>Laboratory/California Institute of Technology<br><b>Visiting Associate in Physics</b> , California Institute of Technology |
| March '12 - March '14 | <b>Postdoctoral Researcher</b> , University of Pennsylvania  |
| Sept '09 - March '12  | <b>CCAPP postdoctoral Fellow</b> , Ohio State University'  |

## EDUCATION

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|-----------|--|
| Feb '09   | <b>PhD in Astronomy</b> (Dr. rer. nat.), University of Bonn  |
| '06 – '09 | Member of the International Max Planck Research School of Astronomy<br>and Astrophysics (MPIfR Bonn) |
| March '05 | <b>"Diplom" in Physics</b> , University of Bonn  |

## PROFESSIONAL ACTIVITIES

- **LSST-DESC** (Large Synoptic Survey Telescope-Dark Energy Science Collaboration)
  - Co-Convener "Weak Lensing Working Group" (since Nov 2017)
  - Task Force lead "Advanced Statistical Methods for Cosmological Parameter Inference" (2015-2017)
  - Full Member since 2015 (access to all DESC science products)
- **DES** (Dark Energy Survey):
  - Co-Convener "Theory and Combined Probes Working Group" (since Feb 2019)
  - Coordinator DES analysis team: "Developing Multi-Probe Analysis Pipelines" (2015-2019)
  - Co-Lead DES Y6 Task Force: (Quantifying science gain of an extended DES survey) (2016)
  - Builder and Associate Member (DES data rights, postdoc supervision rights at non-DES institutions)
  - Member of the DES Computing Requirements task force

- **Co-I WFIRST Science Investigation Team** “Galaxy Redshift Survey Investigations” and “Weak Lensing and Cluster Growth Investigations”
  - Leading Task on “Cosmological Forecasts”
- **Co-I SuperBIT** (Super-pressure Balloon-borne Imaging Telescope) mission, NASA APRA funded, launch 2020
- **Science Team Member SPHEREx mission** (NASA Mid-Ex mission selected for launch in 2023)
- **Principal Developer of the CosmoLike Multi-Probe Analysis Framework:**
  - CosmoLike is used as one of the DES pipelines at the US-National Energy Research Scientific Computing Center (NERSC).
  - WFIRST, SPHEREx specific versions of CosmoLike are used to simulate science return on JPL High-Performance Computing and NASA Pleiades Super-Computer
- **Data analysis:** Participation in various ground/space based cosmological data analyses
  - SDSS (ground): Sloan Digital Sky Survey (Huff, Eifler, et al 2014)
  - COSMOS (space): Cosmic evolution survey (Schrabback et al 2007, 2010)
  - CFHTLS (ground): Canada-France-Hawaii Legacy Survey (Eifler et al 2010)
  - GaBoDs (ground): the Garching-Bonn deep survey (Hildebrandt et al 2007)
  - DESxCMB: Giannantonio et al (2016)
  - DES (ground): The DES collaboration et al (2018) and references therein

#### **INVITED TALKS/WORKSHOPS (SELECTED):**

- Aspen Physics Center June 2014: “Combining Probes in Cosmological Surveys”
- Carnegie Mellon University, Pittsburgh, US April 2015: Invited talk (Astronomy seminar)
- Excellence Cluster Universe Munich, Germany, June 2015: Invited colloquium
- UC Davis Physics Department, Davis, CA, US, Dec 2015: Invited Physics seminar
- Korea Astronomy and Space Science Institute, Daejeon, Korea, April 2016: Invited talk on Cosmology with LSST at the “Future Surveys and Big data” conference
- COSMO16, University of Michigan, Aug 8-12, 2016: Scientific Organizer of the session on “Future cosmological probes”
- Aspen Physics Center June 2016: “Testing the laws of gravity with cosmological surveys”
- International Biomedical and Astronomical Signal Processing (BASP) workshop, Switzerland, (Jan 29-Feb 3 2017, Scientific Organizer of the session on “Advanced Statistical Methods to extract Cosmological Information in the LSST Era”
- Stony Brook University, Stony Brook, NY, US, Feb 2017, invited Physics/Cosmology seminar
- Center for Computational Cosmology, New York, NY, US Feb 2017, invited colloquium
- University of Stockholm, Stockholm, Sweden, Feb 2017, invited Cosmology seminar
- University of Illinois, Urbana-Champaign, IL, US, Mar 2017, invited Physics seminar
- California Institute of Technology, Pasadena, Dark Matter in Southern California: Beyond WIMP Dark Matter conference, invited talk
- Aspen Physics Center June 2018: “Perfect Pixels. Accurate Astrophysics. Correct

- SnowPAC 2018 conference: Big Questions, Big Surveys, Big Data: Astronomy & Cosmology in the 2020s, March 2018, 1) organizing session on "Software and Computing" . 2) Talk on "Simulation requirements for future cosmological surveys" in the Theory and Simulations session.
- University of Oxford, conference on "Statistical Challenges for Large-scale Structure in the Era of LSST" , invited speaker, April 2018
- Mainz Institute for Theoretical Physics, workshop on "Tensions in the LCDM paradigm" , invited, May 2018
- 2<sup>nd</sup> World Summit on Exploring the Dark Side of the Universe conference, University of Antilles, Guadeloupe, invited/plenary speaker, June 2018
- Cosmology Seminar, UC Santa Cruz, invited, July 2018
- Physics Colloquium, University of Arizona, Jan 2019
- UC Berkeley, "Accurate lensing in the era of precision cosmology" invited talk, Jan 2019

### WORKSHOP/CONFERENCE ORGANIZER:

20th annual international Conference on Particle Physics and Cosmology (COSMO-16), session on " Cosmic Probes and Future Experiments" ; SnowPAC 2018, session on " Software and Computing" ; LSST Project and Community Workshop 2019 SOC; chair SOC LSSTC workshop on " Synergies of LSST and suborbital missions" Aug 2019; numerous sessions at DES and LSST-DESC meetings since 2011.

### PANEL/PAPER REVIEWER:

DOE Office of Science Graduate Student Research Program; DOE ASCR Leadership Computing Challenge; Hubble Space Telescope Time Allocation Committee; NASA Postdoctoral Program; JPL mission concepts Red Team; NASA Astrophysics Theory Program; Referee for MNRAS and Apj since ' 10 and ' 12, respectively

### TEACHING EXPERIENCE

- 2007/08/09 Organizer Seminar on Statistical Methods in Astronomy (UBonn)
- 2010-2012 Organizer Cosmology JournalClub (CCAPP, Ohio State University)
- 2014 Co-instructor Astro 012 Course, "Introduction to Astrophysics II" , (University of Pennsylvania)
- 2014-17 Mentor of 8 SURF (summer undergraduate research fellowship) students at JPL/Caltech ( "JPL Mentoring in Action Award in 2014" )
- 2017/18 Organizer "SURF cosmology school" within the JPL Astrophysics section for 15 Summer Undergraduate Research Fellowship interns, developed concept and curriculum and taught 1 lecture. ( "JPL Voyager Award in 2018" )
- 2019 Instructor "The Physical Universe" , Astro 170B, University of Arizona

**GRANTS/AWARDS:****DOE Early Career Award 2019**

Multi-Probe Cosmology with DES and LSST  
PI: Tim Eifler (2019-2024)

**NASA ROSES Astrophysics Theory Program**

Kinematic Weak Lensing with space missions and ground-based surveys  
PI: Tim Eifler (2017-2021)

**NASA ROSES Astrophysics Theory Program**

Modeling the Universe – Interfacing Numerical Simulations, Theory, Statistical Methods, and Observations  
PI: Tim Eifler (2016-2020)

**NASA ROSES Astrophysics Data Analysis Program**

Analyzing Planck and low redshift data sets with advanced statistical methods  
PI: Tim Eifler (2016-2020)

**DOE/DES operations**

Science Infrastructure for the Dark Energy Survey  
PI: Tim Eifler (2018/19)

**JPL Research and Technology Development Fund**

Exploring fundamental physics with multiple observables and data sets  
PI: Tim Eifler (2018/19)

**NASA Keck Observations Program**

Kinematic Weak Lensing – A Pilot Study  
PI: Tim Eifler (2016)

**NASA ROSES Astrophysics Research and Analysis Program**

SuperBIT: Wide-field, Sub-arcsecond Imaging from the Super-Pressure Balloon Platform  
PI: William Jones (Princeton), (2016-2020), Eifler is Co-I

**NASA WFIRST Science Investigation Teams**

Cosmology with the WFIRST High Latitude Survey  
PI: Olivier Dore (JPL), (2016-2021), Eifler is Co-I and UofA institutional PI

**JPL Strategic University Partnership**

Eppur Si Muove  
JPL-PI: Eric Huff, University PI: Tim Eifler (2019-2021)

**Publications:** 174 publications (134 refereed in major science journals, all others pending refereeing) with a total of 8001 citations (7527 citations in refereed Journals), h-index=43 according to NASA/ADS Metrics Summary

**First/Tier1 author or key contribution papers (10 selected):**

1. DES Collaboration: Abbott, T. M. C., Alarcon, A., Allam, S., Andersen, P., Andrade-Oliveira, F., Annis, J., et al., Cosmological Constraints from Multiple Probes in the Dark Energy Survey, *Physical Review Letters*, 122, 171301, (2019)
2. Friedrich, O., & Eifler, T., Precision matrix expansion - efficient use of numerical simulations in estimating errors on cosmological parameters, *Monthly Notices of the Royal Astronomical Society*, 473, 4150, (2018)
3. The LSST Dark Energy Science Collaboration, Mandelbaum, R., Eifler, T., Hložek, R., Collett, T., Gawiser, E., Scolnic, et al., The LSST Dark Energy Science Collaboration (DESC) Science Requirements Document, arXiv e-prints, arXiv:1809.01669, (2018)
4. Huang, H.-J., Eifler, T., Mandelbaum, R., & Dodelson, S., Modeling baryonic physics in future weak lensing surveys, arXiv e-prints, arXiv:1809.01146, (2018)
5. Krause, E., & Eifler, T., cosmolike - cosmological likelihood analyses for photometric galaxy surveys, *Monthly Notices of the Royal Astronomical Society*, 470, 2100, (2017)
6. Abbott, T. M. C., Abdalla, F. B., Alarcon, A., Aleksić, J., Allam, S., Allen, S., et al., Dark Energy Survey year 1 results: Cosmological constraints from galaxy clustering and weak lensing, *Physical Review D*, 98, 043526, (2018)
7. Troxel, M. A., MacCrann, N., Zuntz, J., Eifler, T. F., Krause, E., Dodelson, S., et al., Dark Energy Survey Year 1 Results: Cosmological Constraints from Cosmic Shear, *ArXiv e-prints*, arXiv:1708.01538, (2017)
8. Schaan, E., Krause, E., Eifler, T., Doré, O., Miyatake, H., Rhodes, J., et al., Looking through the same lens: Shear calibration for LSST, Euclid, and WFIRST with stage 4 CMB lensing, *Physical Review D*, 95, 123512, (2017)
9. Krause, E., Eifler, T., & Blazek, J., The impact of intrinsic alignment on current and future cosmic shear surveys, *Monthly Notices of the Royal Astronomical Society*, 456, 207, (2016)
10. Eifler, T., Krause, E., Dodelson, S., Zentner, A. R., Hearin, A. P., & Gnedin, N. Y., Accounting for baryonic effects in cosmic shear tomography: determining a minimal set of nuisance parameters using PCA, *Monthly Notices of the Royal Astronomical Society*, 454, 2451, (2015)