

Melanie Simet

✉ melanie.simet@ucr.edu

Education

University of Chicago

Ph.D., astronomy and astrophysics

Chicago, IL

December 2012

University of Iowa

B.S., physics and astronomy

With honors and distinction

Iowa City, IA

May 2006

Employment

Assistant Project Scientist

University of California Riverside

September 2017–

Visiting postdoc

Jet Propulsion Laboratory, California Institute of Technology

September 2016–

Visiting postdoc

Infrared Processing and Analysis Center, California Institute of Technology

September 2016–

Postdoctoral Research Scholar

University of California Riverside

September 2016–August 2017

Postdoctoral Research Associate

Carnegie Mellon University

September 2012–August 2016

Presentations

Weak lensing with galaxy clusters

Stanford cosmology seminar

March 2018

Cluster mass calibrations with future data sets

Astronomy in the 2020s: Synergies with WFIRST

June 2017

Weak Lensing with Galaxy Clusters

JPL astrophysics lunch seminar

May 2017

Weak Lensing with Galaxy Clusters

Greater IPAC Science Symposium

May 2017

Weak Lensing with Galaxy Clusters

UC Riverside astronomy seminar

April 2017

Weak Lensing with Galaxy Clusters <i>IPAC lunch seminar</i>	<i>March 2017</i>
Weak Lensing Measurement of the Mass-Richness Relation of SDSS redMaPPer Clusters <i>COSMO-16, Ann Arbor, MI</i>	<i>August 2016</i>
Background sky obscuration by cluster galaxies as a source of systematic error for weak lensing <i>224th AAS meeting, Boston, MA</i>	<i>June 2014</i>
Cluster lensing and tomography from SDSS <i>The Multi-Wavelength, Multi-Epoch Heritage of Stripe 82</i>	<i>March 2014</i>
Galaxy cluster center detection methods with weak lensing <i>221st AAS meeting, Long Beach, CA</i>	<i>January 2013</i>
Weak lensing tomography with galaxy clusters in the SDSS Stripe 82 Coadd <i>219th AAS Meeting, Austin, TX</i>	<i>January 2012</i>
Studying weak lensing with galaxy clusters <i>Iowa State University astronomy seminar</i>	<i>December 2011</i>
Indirect detection of dark matter <i>Santa Fe Cosmology Institute</i>	<i>July 2010</i>
The effect of axionlike particles on gamma-ray spectra <i>Cosmo 08, Madison, WI</i>	<i>August 2008</i>

Collaborations

- Member, Dark Energy Science Collaboration
- Member, WFIRST science investigation team for the High-Latitude Survey led by Dr. Olivier Doré
- External collaborator, Hyper SuprimeCam (weak lensing working group)
- External collaborator, Dark Energy Survey (galaxy cluster working group)

Teaching

- Supervised a summer undergraduate research student, 2017 and 2018 (co-advised with Jason Rhodes).
- Lecturer for and co-organizer of the Dark Sector SURF summer school, a weekly lecture series for summer undergraduate research students working on cosmology at JPL, 2017
- As a teaching assistant, University of Chicago:
 - The Physics of Stars and Stellar Systems
 - Electronics
 - Modern Physics
 - Evolution of the Natural World II: Evolution of the Universe

- Stellar Astronomy and Astrophysics
- Foundations of Modern Physics II
- The Origin of the Universe and How We Know

Academic Service

Referee for MNRAS, A&A, APh, Nature Astronomy

Organizer of Dark Sector group meetings

NASA JPL

2017–

Member of local organizing committee, Innovative Cosmological Simulations with Machine Learning and Statistics in the era of LSST

Carnegie Mellon University

2015

Member of McWilliams Center visitors committee

Carnegie Mellon University

2014–2016

Organizer of Friday afternoon research discussion for McWilliams Center students, staff and faculty

Carnegie Mellon University

2013–2016

Session chair

224th AAS Meeting, Boston, MA

2014

Executive committee member

Great3 weak lensing shape measurement challenge

2013–2016

Student representative to faculty meetings

University of Chicago

2010–2012

Student representative to the curriculum committee

University of Chicago

2007–2009

Outreach

The Stuff of the Universe

UC Riverside

November 2017

Public talk, Cosmic Thursdays lecture series

Dark Matter

University of Northern Iowa, Cedar Falls, IA

February 2015

Guest lecture to the Introduction to Astrosciences class

Searching for invisible matter in the universe

Allegheny Observatory, Pittsburgh, PA

August 2013

Public talk

Instructor at the Yerkes Summer Institute

Yerkes, WI

July 2010

A program of the University of Chicago's Office of Special Programs College Prep

Publications

- M. Simet** & R. Mandelbaum. Impact of individual photometric redshift distributions on galaxy-galaxy weak lensing signals. In prep.
- McClintock, T., et al (including **M. Simet**). Dark Energy Survey Year 1 Results: Weak Lensing Mass Calibration of redMaPPer Galaxy Clusters. MNRAS, submitted. arXiv:1805.00039
- Doré, Olivier, et al (including **M. Simet**). WFIRST Science Investigation Team "Cosmology with the High Latitude Survey" Annual Report 2017. arXiv:1804.03628
- E. Medezinski, M. Oguri, A. J. Nishizawa, J. S. Speagle, H. Miyatake, K. Umetsu, A. Leauthaud, R. Murata, R. Mandelbaum, C. Sifón, M. A. Strauss, Huang S., **M. Simet**, N. Okabe, M. Tanaka, Y. Komiyama. Source Selection for Cluster Weak Lensing Measurements in the Hyper Suprime-Cam Survey. PASJ, 70:30, March 2018. arXiv:1706.00427
- R. Mandelbaum, et al (including **M. Simet**). The first-year shear catalog of the Subaru Hyper Suprime-Cam SSP Survey. PASJ, 70:S25, January 2018. arXiv:1705.06745
- H. Aihara, et al (including **M. Simet**). First Data Release of the Hyper Suprime-Cam Subaru Strategic Program. PASJ, 70:S8, January 2018. arXiv:1702.08449
- H. Aihara, et al (including **M. Simet**). The Hyper Suprime-Cam SSP Survey: Overview and Survey Design. PASJ, 70:S4, January 2018. arXiv:1704.05858
- R. Mandelbaum, F. Lanusse, A. Leauthaud, R. Armstrong, **M. Simet**, H. Miyatake, J. E. Meyers, J. Bosch, S. Miyazaki, M. Tanaka. Weak lensing shear calibration with simulations of the HSC survey. MNRAS, submitted. arXiv:1710.00885
- Y. Zu, R. Mandelbaum, **M. Simet**, E. Rozo, and E. Rykoff. On the level of cluster assembly bias in SDSS. Monthly Notices of the Royal Astronomical Society, 470:551, September 2017. arXiv:1611.00366
- M. Simet**, N. Battaglia, R. Mandelbaum, and U. Seljak. Weak lensing mass calibration of the RBC X-ray galaxy cluster catalog. Monthly Notices of the Royal Astronomical Society, 466:3663, April 2017. arXiv: 1502.01024
- M. Simet**, T. McClintock, R. Mandelbaum, E. Rozo, E. Rykoff, and E. Sheldon. Weak Lensing Calibration of the Mass-Richness Relation of SDSS redMaPPer Clusters. Monthly Notices of the Royal Astronomical Society, 466:3103, April 2017. arXiv: 1603.06953
- R. Mandelbaum, et al (including **M. Simet**). GREAT3 results I: systematic errors in shear estimation and the impact of real galaxy morphology. Monthly Notices of the Royal Astronomical Society, 450:2963, July 2015. arXiv: 1412.1825
- M. Simet** and R. Mandelbaum. Background sky obscuration by cluster galaxies as a source of systematic error for weak lensing. Monthly Notices of the Royal Astronomical Society, 449:1259, May 2015. arXiv: 1406.4908
- B. Rowe, M. Jarvis, R. Mandelbaum, G. M. Bernstein, J. Bosch, **M. Simet**, J. E. Meyers, T. Kacprzak, R. Nakajima, J. Zuntz, H. Miyatake, J. P. Dietrich, R. Armstrong, P. Melchior, and M. S. S. Gill. GalSim: The modular galaxy image simulation toolkit. Astronomy & Computing, 10:121, April 2015. arXiv: 1407.7676
- J. Annis, M. Soares-Santos, M. Strauss, A. C. Becker, S. Dodelson, X. Fan, J. E. Gunn, J. Hao, Z. Ivezic, S. Jester, L. Jiang, D. E. Johnston, J. M. Kubo, H. Lampeitl, H. Lin, R. H. Lupton, G. Miknaitis, H-J. Seo, **M. Simet**, and B. Yanny. The SDSS Coadd: 275 deg² of Deep SDSS Imaging on Stripe 82. The Astrophysical Journal, 794:120, October 2014. arXiv: 1111.6619

- R. Mandelbaum, B. Rowe, J. Bosch, C. Chang, F. Courbin, M. Gill, M. Jarvis, A. Kannawadi, T. Kacprzak, C. Lackner, A. Leauthaud, H. Miyatake, R. Nakajima, J. Rhodes, **M. Simet**, J. Zuntz, B. Armstrong, S. Bridle, J. Coupon, J. P. Dietrich, M. Gentile, C. Heymans, A. S. Jurling, S. M. Kent, D. Kirkby, D. Margala, R. Massey, P. Melchior, J. Peterson, A. Roodman, and T. Schrabback. The Third Gravitational Lensing Accuracy Testing (GREAT3) Challenge Handbook. *The Astrophysical Journal Supplement*, 212:5, May 2014. arXiv:1308.4982
- M. Simet**. Galaxy cluster center detection methods with weak lensing. PhD thesis, The University of Chicago, 2012.
- H. Lin, S. Dodelson, H-J. Seo, M. Soares-Santos, J. Annis, J. Hao, D. Johnston, J. M. Kubo, R. R. R. Reis, and **M. Simet**. The SDSS Coadd: Cosmic Shear Measurement. *The Astrophysical Journal*, 761:15, December 2012. arXiv:1111.6622
- M. Simet**, J. M. Kubo, S. Dodelson, J. Annis, J. Hao, D. Johnston, H. Lin, R. R. R. Reis, M. Soares-Santos, and H-J. Seo. The SDSS Coadd: Cross-Correlation Weak Lensing and Tomography of Galaxy Clusters. *The Astrophysical Journal*, 748:128, April 2012. arXiv:1111.6621
- R. R. R. Reis, M. Soares-Santos, J. Annis, S. Dodelson, J. Hao, D. Johnston, J. M. Kubo, H. Lin, H-J. Seo, and **M. Simet**. The SDSS Coadd: A Galaxy Photometric Redshift Catalog. *The Astrophysical Journal*, 747:59, March 2012. arXiv:1111.6620
- M. Pato, D. Hooper, and **M. Simet**. Pinpointing cosmic ray propagation with the AMS-02 experiment. *Journal of Cosmology and Astroparticle Physics*, 6:22, June 2010. arXiv: 1002.3341
- I. Cholis, L. Goodenough, D. Hooper, **M. Simet**, and N. Weiner. High energy positrons from annihilating dark matter. *Physical Review D*, 80(12):123511, December 2009. arXiv: 0809.1683
- M. Simet** and D. Hooper. Astrophysical uncertainties in the cosmic ray electron and positron spectrum from annihilating dark matter. *Journal of Cosmology and Astroparticle Physics*, 8:3, August 2009. arXiv: 0904.2398
- M. Simet**, D. Hooper, and P. D. Serpico. Milky Way as a kiloparsec-scale axionscope. *Physical Review D*, 77(6):063001, March 2008. arXiv: 0712.2825
- P. Kaaret, **M. G. Simet**, and C. C. Lang. A 62 Day X-ray Periodicity and an X-ray Flare from the Ultraluminous X-ray Source in M82. *Astrophysical Journal*, 646:174–183, July 2006. arXiv:astro-ph/0604029
- P. Kaaret, **M. G. Simet**, and C. C. Lang. The orbital period of the ultraluminous X-ray source in M82. *Science*, 311:491, January 2006. arXiv:astro-ph/0603653
- S. M. Morgan, **M. Simet**, and S. Bagenquast. Fourier Coefficients of OGLE Variables. III. delta Scuti Stars. *Acta Astronomica*, 48:509–518, September 1998.
- S. M. Morgan, **M. Simet**, and S. Bagenquast. Fourier Coefficients of OGLE Variables. II. RR Lyraes. *Acta Astronomica*, 48:341–353, April 1998.
- S. M. Morgan, **M. Simet**, and S. Bagenquast. Fourier Coefficients of OGLE Variables. I. Parameters for the Baade’s Window, MM5-A, MM5-B, MM7-A, and MM7-B Field Variables. *Acta Astronomica*, 48:331–339, April 1998.