Rachel Mandelbaum

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Appointments

2014-present	Associate Professor, Department of Physics, Carnegie Mellon University
2013-2016	The Falco-DeBenedetti Career Development Professor in Physics, Carnegie Mellon University
2011-2014	Assistant Professor, Department of Physics, Carnegie Mellon University
2011-2012	Visiting Associate Research Scholar, Department of Astrophysical Sciences, Princeton University
2009-2011	Associate Research Scholar, Department of Astrophysical Sciences, Princeton University
2006-2009	Hubble Fellow, Astrophysics, Institute for Advanced Study

Education

2001-2006	Ph.D. in Physics, Princeton University (advisor: Uroš Seljak)
1996-2000	A.B. in Physics with highest honors, Princeton University

Fellowships and Awards

2013-2016	The Falco-DeBenedetti Career Development Professor in Physics at CMU
2013	Alfred P. Sloan Fellowship
2012	Department of Energy Early Career Award
2011	AAS Annie Jump Cannon Prize
2006	Hubble Fellowship
2001-2006	Centennial Fellowship, Princeton University
2002-2005	National Science Foundation Graduate Research Fellowship
2000	Kusaka Memorial Prize, Dept. of Physics, Princeton University
2000	Member of Phi Beta Kappa

Other professional activities

7/15-present	Member of the Astronomy & Astrophysics Advisory Committee (AAAC); vice-chair since 7/16
7/15-present	Analysis coordinator for the LSST Dark Energy Science Collaboration (DESC), overseeing seven dark energy science working groups
2014-present	Member of the Collaboration Council (CC) for the DESC
2015-present	Head of the collaboration meetings committee for the DESC

2015-present	Co-leader of the weak lensing working group for the Hyper-SuprimeCam (HSC) survey
2014-2016	Member of the LSST Science Advisory Committee (SAC)
2012-2015	Weak lensing working group co-convener for DESC
2012-present	One of several lead developers for the widely-used open-source image simulation software package, GalSim[1]
2013-present	Member of Euclid consortium
2007-present	Reviewer for MNRAS, ApJ, A&A
2015	Cosmology session convener for the American Physical Society Division of Particles and Fields (DPF) meeting, August 2015
2012-2014	Co-leader of the international weak lensing committee challenge, GREAT3[2]
2015	Reviewer for Department of Energy Cosmic Frontier program
2014	Reviewer for NASA Postdoctoral Program (NPP)
2011	Member of HST cosmology review panel, cycle 19
2006-present	Member of American Astronomical Society (AAS)
2015-present	Member of International Astronomical Union (IAU)

Invited talks from past five years

2016	Invited speaker at Statistical Challenges in Modern Astronomy VI, Pittsburgh, June 2016
2015	Invited speaker at Lorentz Centre Workshop "Small-Scales=Big-Problem?", Leiden, February 2015 Invited speaker at "Mocking the Universe", STScI, July 2015
2014	Invited pedagogical review about weak lensing measurements at "Precision Astronomy with Fully Depleted CCDs" (PACCD) conference, Brookhaven National Labs, December 2014. Review talk at IAU Symposium 311, "Galaxy masses as Constraints of Formation Models", July, 2014.
2013	The Aspen Center for Physics weekly general physics colloquium, June, 2013. Plenary talk at the 2013 MPA/ESO/MPE/Excellence-Cluster Joint Astronomy Conference, "The Physical Link between Galaxies and their Halos", June 2013.
2012	*Astrophysical tests of General Relativity*, invited talk at the 7th Sackler Conference in Theoretical Astrophysics, Harvard University, spring 2012. *Weak lensing - Revealing the Dark Side of the Universe*, Annie Jump Cannon Prize lecture at the Jan. 2012 meeting of the American Astronomical Society.
2011	*Weak lensing: what's next?*, Munich Joint Astronomical Colloquium series, fall 2011. *SDSS stripe 82 science: a random grab bag*, invited plenary talk at the Sloan Digital Sky Survey-III (SDSS-III) collaboration meeting, Vanderbilt, summer 2011. *Prospects for constraining the theory of gravity with SDSS/BOSS and HSC*, invited plenary talk at "Unraveling the Nature of the Universe with current and future Data Sets," CCAPP (Ohio State Univ.), spring 2011.

[1] `https://github.com/GalSim-developers/GalSim`
[2] `http://www.great3challenge.info`

Meetings organized in past 5 years

2015	Head of SOC for LSST DESC collaboration meeting, October 2015
	Member of SOC for "Theoretical and Observational Progress on Large-Scale Structure of the Universe", MPA/ESO/MPE/Excellence Cluster University Joint Conference 2015
	SOC, LOC for "Innovative Cosmological Simulations with Machine Learning and Statistics in the Era of LSST", Pittsburgh, PA, June 2015
	Weak lensing working group meeting for HSC, May 2015
	Member of SOC for "From theory to applications: celebrating a century of gravitational lensing", planned for July 2016 in Leiden
2014	Lead organizer for final meeting of the GREAT3 challenge (May 2014) at CMU
	Member of SOC for meeting on Stripe 82, Princeton, March 2014
	Co-organizer for mid-challenge meeting (Jan. 2014) for the GREAT3 lensing challenge, Edinburgh, Scotland
2013	Member of LOC for collaboration meeting of the LSST Dark Energy Science Collaboration (DESC), Dec. 2013
	Co-organizer for kickoff meeting (Aug. 2013) for the GREAT3 lensing challenge, Pasadena, CA
	Member of SOC for "Probes of Dark Matter in Galaxies", July 2013
	Member of SOC for the 2013 MPA/ESO/MPE/Excellence-Cluster Joint Astronomy Conference, "The Physical Link between Galaxies and their Halos", Garching, Germany, June 2013
	Co-organizer of workship (June-July 2013) on weak lensing at the Aspen Center for Physics.
	Co-organizer of workshop for GREAT3 challenge planning, Oct. 2013, Pittsburgh, PA.
2012	Member of local organizing committee for workshop on cosmic acceleration, Carnegie Mellon University, August 2012

Grants

2016-2021	"Cosmology with the WFIRST High Latitude Survey", NASA WFIRST Science Investigation Team program, PI: Olivier Dore (JPL), $8.4M split across multiple institutions with $615k to CMU
2012-2028	"Science with the Euclid Mission", NASA, PI: Jason Rhodes, amount of funding per person varies per year (∼$90k to CMU in 2014-2015, 140k in 2015-2016)
2015-2018	"Cosmic Web Reconstruction: A Unique Opportunity On the Cosmic Structures of the Universe", NSF AAG program, PI: Shirley Ho, $436k
2014-2017	"Machine Learning Algorithms for Matching Theories, Simulations, and Observations in Cosmology", Department of Energy, Advanced Scientific Computing, PI: Jeff Schneider, $1.65M
2012-2017	"Optimal cosmological measurements with weak gravitational lensing", Department of Energy Early Career Award Program (office of High Energy Physics), $750,000
2016	"Alignment models for weak lensing science", JPL SURP program, PI: Alina Kiessling (JPL), $100k ($65k to CMU)

2015-2016	"Interpixel capacitance requirements and GalSim development for WFIRST PI", WFIRST project office, $40k
2012-2016	"A homogeneous ACS dataset for realistic galaxy simulations", HST Archive Research Program, $106k
2013-2016	"Galaxy shape measurements and intrinsic alignments: reducing the impact of weak lensing systematic errors", National Science Foundation (NSF) Astronomy and Astrophysics Grant (AAG) Program, $363k
2013-2015	Alfred P. Sloan Fellowship, $50k
2014	"GalSim for WFIRST-AFTA: State-of-the-Art Image Simulations", WFIRST project office, $36k
2012-2013	"A GREAT Opportunity: weak lensing method development for the era of precision cosmology", JPL SURP program, PI: Jason Rhodes, $100k ($45k to CMU)