

Rachel Mandelbaum

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Personal data

Appointments

2019-present	Professor, Department of Physics, Carnegie Mellon University
2016-2019	Associate Professor with Indefinite Tenure, Department of Physics, Carnegie Mellon University
2014-2016	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 (NASA postdoctoral fellowship), Astrophysics, Institute for Advanced Study

Education

2001-2006	Ph.D. in Physics, Princeton University (advisor: Uroš Seljak) Thesis title: “Weak gravitational lensing analysis of Sloan Digital Sky Survey data”
1996-2000	A.B. in Physics with highest honors, Princeton University

Publication list

In February 2024, my h-index was 77 according to NASA Astrophysics Data System (ADS), with >35,000 citations when including all papers. Other identifying information:

NASA ADS search results for my publications: <http://tinyurl.com/pdftrxjw>

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Presentations

Invited talks at conferences and workshops

For the sake of brevity, only the past 5 years are shown.

2023	Plenary talk, Simons Foundation Mathematical & Physical Sciences annual meeting, October 2023
2022	Invited review, EchoIA kickoff workshop (virtual), February 2022 Invited talk on LINCC Frameworks, LSST Solar System Readiness Sprint (virtual), June 2022 Invited talk, “New Frontiers in Cosmology with the Intrinsic Alignments of Galaxies”, Kyoto (participated remotely), December 2022
2020	All of my invited talks for 2020 were at conferences and workshops that got postponed (rather than converted to online format) due to the pandemic.
2019	Invited review talk on weak lensing at Kavli symposium, Cambridge, UK Invited review talk on weak lensing at Great Lakes Cosmology Workshop, Rochester, NY Invited speaker at weak lensing workshop at the BCCP, Berkeley, CA
2018	Keynote speaker at “Statistical Challenges in 21st Century Cosmology” (Cosmo21), Valencia, Spain, May 2018 Invited speaker on the LSST survey at “Probing the Nature of Dark Matter with LSST”, University of Pittsburgh, March 2018

Invited departmental seminars and colloquia

For the sake of brevity, only the past 5 years are shown.

2022	NASA JPL Astrophysics Colloquium University of Delaware Physics & Astronomy Colloquium Penn State University Astrophysics Colloquium
2021	University of Utah physics colloquium (virtual) Colloquium at AstroParticle & Cosmology (APC) laboratory in Paris (virtual)
2020	Fermilab astro seminar (virtual) Ohio University physics colloquium (virtual) Oxford Astrophysics Colloquium (virtual) UIUC Astronomy Colloquium
2019	University of Arizona astronomy colloquium
2018	CMU Machine Learning Department seminar Perimeter Institute astrophysics colloquium Harvard-Smithsonian Center for Astrophysics colloquium Ohio State University CCAPP seminar Goddard Space Flight Center (GSFC) astrophysics colloquium

Information reflecting external reputation

Fellowships and Awards

2019-2024	Simons Investigator in Astrophysics
2013	Alfred P. Sloan Fellowship
2012-2017	Department of Energy Early Career Award
2011	American Astronomical Society Annie Jump Cannon Prize, awarded “for outstanding research and promise for future research by a postdoctoral woman researcher”
2006	Hubble Fellowship, a NASA prize postdoctoral program
2001-2006	Centennial Fellowship, Princeton University
2002-2005	National Science Foundation Graduate Research Fellowship
2000	Kusaka Memorial Prize, Dept. of Physics, Princeton University

Leadership roles

For the sake of brevity, only the past 5 years are shown.

7/21-present	CMU PI for the LINCC Analysis Frameworks initiative ¹ , funded by the Schmidt Futures Foundation.
7/19-6/21	Spokesperson for the Rubin Observatory LSST Dark Energy Science Collaboration (DESC). The Spokesperson “has overall responsibility for all scientific, technical, organizational, and financial aspects of the Collaboration” (according to the DESC Governance Plan).
7/15-6/19	Analysis coordinator for the LSST DESC. The analysis coordinator is part of the collaboration’s management team, overseeing and enabling the efforts of the collaboration’s analysis working groups and several cross-working group efforts, with oversight on relevant operations personnel.
2012-present	One of several lead developers for the widely-used open-source image simulation software package, GalSim ² , used by many groups in weak lensing and other image-intensive applications world-wide.

Other professional activities

For the sake of brevity, only the past 5 years are shown.

1/23-present	Member of Rubin Observatory Survey Cadence Optimization Committee (SCOC)
12/22-12/23	Member of P5 (Particle Physics Project Prioritization Panel)
12/22	Career panelist at SciTech day organized by the Carnegie Science Center
10/22-3/23	Co-chair of LSST DESC Spokesperson Nominating Committee
11/21	Career panelist at SciTech day organized by the Carnegie Science Center
10/21-2/23	Member of the LSST DESC Operations Committee
10/21-2/23	Member of the LSST Corporation (LSSTC) Executive Board
7/21-6/23	Member of the LSST DESC Advisory Board

¹<https://www.lsstcorporation.org/linc/frameworks>

²<https://github.com/GalSim-developers/GalSim>

6/21-8/21	Member of external review committee for the Prime Focus Spectrograph (PFS) survey proposal
1/21-present	Member of the AURA Management Council for Rubin Observatory ³
6/20-3/23	Member of the High Energy Physics Advisory Panel (HEPAP ⁴), which advises NSF and DOE on the national program in experimental and theoretical high energy physics (HEP) research.
3/20-present	Builder of the LSST Dark Energy Science Collaboration (DESC).
1/20-present	Member of the NSF AI Planning Institute for Data-Driven Discovery in Physics
2019-2020	Member of the Astro2020 Decadal Survey cosmology panel
11/18-present	Served on three DOE review panels.

Meetings organized

For the sake of brevity, only the past 5 years are shown.

2023	Chair of local organizing committee for LSST DESC sprint week, CMU, October 2023
2022	Organizer of “From Data to Software to Science with the Rubin Observatory LSST”, NY, March 2022
2021	Organizer of “Quarks to Cosmos with AI”, a virtual conference ⁵ organized by CMU’s NSF AI Planning Institute for Data Driven Discovery in Physics
2018	Member of program committee for MLSE (Machine Learning for Science and Engineering) conference at CMU, June 2018, and lead organizer of associated workshop on machine learning for time domain astrophysics Organizer of “Perfect pixels. Accurate astrophysics. Correct cosmology.” workshop at Aspen Center for Physics, June-July 2018

³<https://www.aura-astronomy.org/blog/2018/09/26/aura-management-council-for-lsst-amcl/>

⁴<https://science.osti.gov/hep/hepap>

⁵<https://events.mcs.cmu.edu/qt2021/>