

Britt F. Lundgren

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PROFILE

As an astrophysicist by training, my research to date has focused on studying the evolution of galaxies from early times and the large-scale structure in the universe. This work involves mining exceptionally large imaging and spectroscopic datasets to create higher-level data products and perform statistical analyses. In addition to this work I also design and evaluate education and outreach programming for students of all ages, with a particular focus on broadening participation in the fields of science, technology, engineering, and math (STEM).

EDUCATION

University of Illinois, Urbana IL — Ph.D. Astronomy 2009
University of Chicago, Chicago IL — B.A. Physics (Honors; Astrophysics specialization) 2003

RESEARCH EXPERIENCE

**Science & Technology Policy Fellow in Big Data & Analytics,
American Association for the Advancement of Science
placed at the National Science Foundation; Arlington, VA — Sept. 2015 - Present**

Supporting a variety of programs and initiatives within the NSF, and conducting analytical program evaluations within the Division of Undergraduate Education. Serving as Executive Secretary for the interagency working group on STEM Engagement, led by NASA and the Smithsonian Institution.

**National Science Foundation Astronomy and Astrophysics Postdoctoral Fellow,
Department of Astronomy, University of Wisconsin; Madison, WI — Oct. 2012 - Sept. 2015**
Used the Hubble Space Telescope and large ground-based galaxy and quasar surveys to investigate a wide range of topics in extragalactic astrophysics.

**Postdoctoral Research Associate, Department of Astronomy, Yale University
New Haven, CT — Oct. 2009 - Sept. 2012**

Conducted astrophysical research in the field of galaxy evolution. Presented work at international conferences and invited seminars. Led observing programs on multiple telescopes (WIYN, Keck).

**Graduate Research Assistant, Department of Astronomy, University of Illinois
Urbana, IL — Aug. 2004 - Sept. 2009**

Mined large spectroscopic and photometric datasets within the Sloan Digital Sky Survey for astrophysical and cosmological analyses. Utilized supercomputing clusters at the National Center for Supercomputing Applications and Purdue Teragrid.

**Research Assistant, Department of Physics, Argonne National Laboratory
Lemont, IL — Aug. 2003 - Aug. 2004**

Designed and built beam diagnostics for the Advanced Penning Trap extension of the Argonne Tandem Linac Accelerator. Contributed to the precision measurements of ions required for estimating abundance yields from supernovae nucleosynthesis.

**Undergraduate Research Assistant, Enrico Fermi Institute, University of Chicago
Chicago, IL — June 2001 - July 2003**

Refined an automated spectroscopic pipeline for extracting the first large sample of absorption lines from the Sloan Digital Sky Survey Early Data Release spectroscopic quasar observations.

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TEACHING & PUBLIC OUTREACH EXPERIENCE

Developer - Sloan Digital Sky Survey (SDSS) Voyages web-based educational activities Madison, WI — 2013 - 2015

Collaborating with the SDSS Public Outreach lead Jordan Raddick (Johns Hopkins University) and science educator Kate Meredith (Yerkes Observatory) to produce online educational materials and develop new inquiry-based activities for the public using the SDSS astronomical database.

Graduate Teaching Assistant, Departments of Physics and Astronomy, University of Illinois; Urbana, IL — 2004-2009

Led discussion and laboratory sessions for six semesters of undergraduate astronomy and physics classes with an average roster of 75 students. Awarded university-wide recognition for excellence in teaching four times.

Lead Developer, *Girls Engaged in Math and Science*; Urbana, IL — 2006-2009

Developed a discovery-based curriculum and led all activities for a NASA-funded after-school program and week-long summer day camp with an emphasis on modern astronomy visualization, serving 90 local middle school girls. Managed a small team of undergraduate teaching assistants and an annual budget of \$15,000 (NASA E/PO; PI: R. Brunner).

General Physics Teacher, Kenwood Academy High School; Chicago, IL — Spring 2003

Planned and instructed one class hour daily for 25 Chicago Public School students as part of the University of Chicago Neighborhood Schools Program.

TALKS & PUBLICATIONS

Presented 14 invited talks at major universities and research institutions; 24 talks at domestic and international conferences; frequent public outreach talks at schools, parks, and public television. Authored 5 (co-authored 50) peer-reviewed articles in leading astronomy journals

TECHNICAL SKILLS

Computing: Proficiency in Python, SQL, data mining, machine learning, high-performance computing, imaging and spectroscopic data analysis.

Telescope Use: Hubble Space Telescope (WFC3/IR): 18 orbits, Cycle 21, GO-13482 (**PI**)
Keck-I (LRIS): 1 night; Semester 2011A (**PI**)
WIYN (HYDRA): 3 nights; Semester 2011A (**PI**)
Australian Astronomical Observatory (2dF): 10 nights, Semester 2006B (CoI)

PROFESSIONAL SERVICE

Co-organizer, Data Science Seminar Series at the National Science Foundation (2015 - present)

Panelist - Hubble Space Telescope Time Allocation Committee (2015)

Co-Chair - Committee on the Participation of Women in the SDSS (2014-2015)

Organizer / Instructor - Summer workshop on data mining and machine learning in astronomy (Madison, WI; 2014)

Speaker - NSF ADVANCE Wisconsin Women & Science Postdoctoral Seminar Program (2013)

Advisor - REU summer research student Brittney Curtis (University of Wisconsin - 2013)

Review Panelist - NASA Graduate Earth and Space Science Research Fellowship (2013)

American Astronomical Society Volunteer - *Communicating with Washington* Political Advocacy Program (2013)

Co-Organizer - NSF Astronomy & Astrophysics Postdoctoral Fellows Symposium (2013)

Student Interviewer, University of Chicago Alumni Schools Committee (2010 - present)

Referee for work submitted for publication in the three top astrophysical journals (2007-present)

PROFESSIONAL SOCIETIES

American Astronomical Society — Member (2009 - present)

American Association for the Advancement of Science (AAAS) — Member (2015 - present)