LAUREN M. CHAMBERS

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EDUCATION

2013-2017 **Yale University,** New Haven, CT
B.S. in Astrophysics and African American Studies, *magna cum laude*
Theses: *A Different Kind of Dark Energy: Placing Race and Gender in Physics*
Understanding Gas-Phase Ammonia (NH_3) Chemistry in Proto-Planetary Disks

PROFESSIONAL EXPERIENCE

American Civil Liberties Union of Massachusetts, Boston, MA
2019 – Pres. *Technology Fellow*
- Supporting the Technology for Liberty Project in promoting synergy between new technology and civil rights
- Exploring and visualizing government datasets with Python and R
- Using data to inform citizens and enable accountability about the effects of legislation and political leadership
- Supporting ACLUM campaigns and litigation

Space Telescope Science Institute, Baltimore, MD
2018 – 2019 *Research and Instrument Analyst II*
2017 – 2018 *Research and Instrument Analyst I*
- Supporting the James Webb Space Telescope mission in preparation for launch and commissioning in 2021
  - Developing interactive software tools in Python using engineering best practices
  - Writing procedures for and participating in team commissioning operational rehearsals
  - Enhancing existing simulator software to generate higher-fidelity commissioning images
  - Analyzing results of fine guidance sensor flight software simulations
- Deputy Technical Lead for JWST Quicklook (observatory performance trending and analysis application)
  - Managing collaborative software development with GitHub: https://github.com/spacetelescope/jwql
  - Designing web application in Python Django
- Developing Jupyter notebook tutorials with the Community Software Initiative
- Promotion received for superior performance during first year

RESEARCH EXPERIENCE

2016-2017 **Harvard-Smithsonian Center for Astrophysics and Banneker Institute**, Cambridge, MA
Advisors: Dr. Karin Öberg and Dr. Ilse Cleeves
- Optimizing a numerical astrochemical model to investigate NH_3/H_2O ratios in proto-planetary disks
- Developing modularized and object-oriented Python wrapper for a Fortran algorithm
- Reviewing and discussing social justice literature on topics and challenges faced by scholars from underrepresented populations within the broader academic environment and world
- Curriculum on public speaking, astrophysical concepts, and computational skills

2016-2017 **Yale African American Studies Department,** New Haven, CT
Advisor: Dr. Hazel Carby
- Analyzing physical and astronomical theory through the perspective of Black women in an effort to understand the effects of a racist-sexist society on scientific ways of knowing

- Applying the astrophysical concepts of dark energy and dark matter as lenses to better understand white male hegemony in the physical sciences
- Syncretizing science studies, critical race theory, and feminist theory
- Conducting oral histories with five Black women PhD astronomers and physicists

2015-2016 **Yale Wright Laboratory**, New Haven, CT
Mentor: Dr. Reina Maruyama
- Designing and constructing a cryogenic spectrometer for the DM-Ice South Pole dark matter study
- Data reduction and statistical analysis of spectral data sets with Python and Jupyter notebooks
- 3D Modeling using Google Sketch-Up

2015 **NASA Goddard Spaceflight Center**, Greenbelt, MD
Mentors: Dr. Alexander Kutyrev & Dr. Neil Gehrels
- Developing modular software in LabVIEW for the Rapid Imager/Spectrometer (RIMAS) instrument, to be installed in the Discovery Channel Telescope at Lowell Observatory in Arizona

HONORS & AWARDS

Aug. 2018 **American Astronomical Society Education & Professional Development Grant** Awardee, in support of the Know Your Power Project Workshop at the 2019 AAS Winter Conference
Apr. 2018 **STScI Team Achievement Award**, *"for organization of the workshop 'Concrete Steps to Make your Institution More Inclusive'"*
May 2017 **Phi Beta Kappa,** Alpha chapter of Connecticut
May 2017 **George Beckwith Prize**, *"to the undergraduate most proficient in some branch of astronomy."*
May 2017 **William Pickens Prize**, *"for an outstanding senior essay in the field of African American Studies."*
2015-2017 **Edward A. Bouchet-Robertson Fellowship,** *"to increase the number of minority students and others with a demonstrated commitment to eradicating racial disparities, who will purse PhDs and subsequent careers in academia."*
Jan. 2017 **Chambliss Outstanding Student Poster Presentation Award,** AAS Winter Conference 2017
Aug. 2015 **NASA Goddard John Mather Nobel Scholar**
2013 **National Achievement** Scholar; **National Merit** Scholarship Finalist

MENTORSHIP & COMMUNITY INVOLVEMENT

2018-2019 "**Know Your Power" Workshop Organizer**, 2019 Winter AAS Conference
Designing, organizing, and facilitating a workshop in which participants learn from a panel to examine what power is available to them, at all career stages, to improve institutions; Funded by the AAS Education Committee; Featured on astrobites: http://tiny.cc/KYP_Astrobites
2019 **"Build a Website in 60 Minutes or Less" Workshop Facilitator**, 2019 Winter AAS Conference
Facilitating a workshop in which participants use GitHub pages to build and launch a website in <60 min.
2019 "**Using Python for Astronomical Data Analysis" Workshop Facilitator**, 2019 Winter AAS Conference
Facilitating a workshop introducing participants to Astropy and affiliated Python packages
2018 – 2019 **Diversity and Inclusion Working Group Member**, STScI
Developing policies and practices in collaboration with the Director's Office to "establish and uphold a civil and inclusive environment for a diverse staff
2018 – 2019 **Social Justice Reading Group Organizer**, STScI
Curating and facilitating a bi-monthly reading group that studies social justice concepts
2017-2019 **"Concrete Steps to Make Your Workplace More Inclusive" Workshop Organizer**, STScI
Workshop developing awareness of privilege and discussing various axes of identity that are frequently marginalized in astronomy; conducted at STScI in Fall 2017 and at the 231st AAS Conference

2016-2017 **First-year Counselor**, Yale College Dean's Office
Competitive leadership and disciplinary role providing academic, professional, social, and emotional support for incoming first years

2015-2016 **Science, Technology, and Research Scholars (STARS) Peer Mentor,** Yale College Dean's Office
Advising and mentoring freshmen in STEM who are women, minorities, economically underprivileged, or otherwise underrepresented

2015-2017 **Yale Physics Department Climate & Diversity Committee**, Undergraduate Representative
Meeting with faculty, staff, and graduate students to discuss and improve inclusion in Yale Physics

2014-2016 **Yale Undergraduate Aerospace Association**
Optical Telescope Team: Secondary project leader; designing and constructing a 16" optical Dobsonian equatorial-mounted telescope; presenting about astronomy to local middle school
Radio Telescope Team: Designing and constructing a 2.4 m radio telescope; developing telescope pointing software

2015-2017 **Yale STEM Likely Team**, Yale Admissions Office
Corresponding with and advising prospective astrophysics students about STEM at Yale

2015-2016 **Science Tour Guide**, Yale Admissions Office
Leading detailed tours of Yale science facilities for prospective science students

2014-2016 **Yale Women in Physics Club**, Secretary
Organizing social events, meetings with professors, and study groups to strengthen community for female physics students

2014-2017 **Racial and Ethnic Openness Club**
Undergraduate discussion group exploring multiracial identity

2014-2015 **Yale DEMOS**
Presenting fun science experiments to New Haven elementary school classes

ADDITIONAL SKILLS

Software Development & Data Analysis:

- Python (including pandas, matplotlib, NumPy, Astropy, SciPy, PyQt, Django, scikit-learn, Jupyter notebooks; specific coursework in astronomical research methods, astrostatistics, and data mining)
- R (including dplyr, ggplot, leaflet)
- git (GitHub & GitLab)
- Unix/Bash
- HTML, CSS, Javascript
- LabVIEW
- Scrum software development
- Continuous integration (Travis/Jenkins/GitLab CI)

General Computer:

- Microsoft Office
- iWork
- LaTeX
- Atlassian collaboration tools (Jira, Confluence, Sourcetree)

Language:

- Spanish (intermediate speaking, reading, and writing)
- French (intermediate reading, basic speaking and writing)

PROFESSIONAL MEMBERSHIPS

2017-Present American Astronomical Society
2018-2019 Society for the Advancement of Chicanos and Native Americans in STEM
2016-2017 National Society of Black Physicists
2016-2017 American Association for the Advancement of Science
2015-2017 American Physical Society

POSTERS & PRESENTATIONS

Preparing for JWST Commissioning, Calibration, and Science with the Multi-Instrument Ramp Generator (MIRaGe)

- *Poster:* Jan. 2019, 233rd American Astronomical Society Winter Conference

A Different Kind of Dark Energy: Placing Race and Gender in Physics

- *Talk:* Sep. 2018, (dot) Astronomy X Conference (webcast: http://tiny.cc/dotAstroX_ADKODE)
- *Talk:* Apr. 2017, Yale Mellon-Bouchet Fellowship Senior Symposium
- *Talk:* Apr. 2017, Yale Astronomy Senior Thesis Colloquium
- *Talk:* Apr. 2017, Yale Undergraduate Ethnic Studies Colloquium
- *Talk:* Apr. 2017, Yale African American Studies Senior Thesis Colloquium
- *Talk:* Nov. 2016, Timothy Dwight College Mellon Forum

The Legacy of Black Physicists at Yale

- *Talk:* May 2017, History Keepers Project Symposium

Understanding Ammonia Chemistry in Protoplanetary Disks

- *Talk:* Apr. 2017, Yale Astronomy Senior Thesis Colloquium
- *Poster:* Jan. 2017, 229th American Astronomical Society Winter Conference (PDF: http://tiny.cc/ChambersAAS2017)
- *Poster:* Oct. 2016, National Society of Black Physicists Conference, Fermilab
- *Talk:* Sep. 2016, Mellon Mays Northeastern Regional Undergraduate Conference, Wellesley College
- *Talk:* Sep. 2016, Yale Astronomy Department Fall 2016 Undergraduate Kick-Off
- *Poster:* Sep. 2016, Yale Undergraduate Research Symposium
- *Talk:* Aug. 2016, Banneker Institute Symposium, Harvard-Smithsonian CfA (webcast: http://www.youtube.com/watch?v=uljyO51gYV0)

Design of a High-Purity Germanium Compton Spectrometer for the DM-Ice Dark Matter Search

- *Talk:* May 2016, Yale Wright Laboratory
- *Talk:* Mar. 2016, Mellon Regional Writing and Research Symposium, Yale University

Modularized Software Control of the RIMAS Instrument for Rapid-Response Gamma Ray Burst Observations

- *Poster:* Aug. 2015, NASA Goddard Space Flight Center Summer Student Poster Session (PDF: https://laurenmarietta.github.io/pdfs/Chambers_GSFC_RIMAS_poster.pdf)

Characterization of the GaAsSb Photocathode with the Micro-Mott Electron Polarimeter

- *Poster:* Aug. 2013, Jefferson Lab Summer Student Poster Session
- *Talk*: May 2013, Governor's School for Science & Technology Senior Symposium

PUBLISHED PAPERS

"A Different Kind of Dark Energy: Evidence for Placing Race and Gender in Physics," **Lauren M. Chambers**, *Astro2020: Decadal Survey on Astronomy and Astrophysics*, APC white papers, no. 162; *Bulletin of the American Astronomical Society*, Vol. 51, Issue 7, id. 162 (2019), Bibcode: 2019BAAS...51g.162C

"STEM Climate survey developed through student–faculty collaboration," Claudia De Grandi, Zachary B. Smithline, Philip M. Reeves, Laura G. Goetz, Nathaniel Barbour, Erika Hairston, Joyce Guo, Fadeke Muraina, Joel A. Bervell, **Lauren M. Chambers,** Helen Caines, Andrew D. Miranker & Simon G. J. Mochrie (2019), *Teaching in Higher Education*, DOI: 10.1080/13562517.2019.1636219