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

2017 – Pres. **Research and Instrument Analyst I**
Space Telescope Science Institute, Baltimore, MD
Supporting the James Webb Space Telescope mission in preparation for launch in 2021, specifically preparing for commissioning of the telescope's optics and fine guidance sensors (FGS).

- Developing interactive software tools in Python to prepare for observatory commissioning
- Participating in commissioning operational rehearsals on behalf of the guiding team
- Designing a web application for performance trending and analysis with JWST Quicklook
- Enhancing existing simulator software to generate higher-fidelity commissioning images
- Testing FGS flight software simulator with simulated commissioning data
- Developing Jupyter notebook tutorials with the Community Software Initiative

2014-2017 **Student Employee**
Yale University, New Haven, CT
Worked a variety of jobs for the university, including as a library assistant, tour guide, peer mentor, and student researcher.

RESEARCH EXPERIENCE

2016-2017 **Harvard-Smithsonian Center for Astrophysics and Banneker Institute**, Cambridge, MA
Advisors: Dr. Karin Öberg and Dr. Ilse Cleeves

- Optimizing and using a numerical astrochemical model to investigate a theoretical discrepancy between the gas- and ice-phase ammonia-to-water ratio in proto-planetary disks
- Reviewing and discussing social justice literature on topics and challenges faced by scholars from underrepresented populations within the broader academic environment and world
- Developing modularized and object-oriented Python wrapper for a Fortran algorithm
- Practicing public speaking and learning astrophysical and computational skills in daily classes

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 High-Purity Ge Compton spectrometer to characterize non-linearity in organic scintillators used for various experiments at Wright Lab, particularly the NaI crystals used for the DM-Ice Dark Matter Experiment at the South Pole
- Data reduction and statistical analysis of spectra 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

2012-2013 **Thomas Jefferson National Accelerator Facility**, Newport News, VA
Mentor: Dr. Marcy Stutzman
- Operating the "micro-Mott" electron polarimeter to characterize a novel Gallium Arsenide superlattice structure (GaAsSb) for use in photocathodes
- Automatizing polarimeter controls and improving data acquisition software using LabVIEW

HONORS & AWARDS

April 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 or mathematics"*
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."*
January 2017 **Chambliss Outstanding Student Poster Presentation Award,** AAS Winter Meeting 2017
August 2015 **NASA Goddard John Mather Nobel Scholar**
2013 **Co-Valedictorian**, Kecoughtan High School
2013 **NASA College Scholarship** Recipient
2013 **National Achievement** Scholar; **National Merit** Scholarship Finalist

MENTORSHIP & COMMUNITY INVOLVEMENT

2018-Pres. ***Invision* Diversity and Inclusion Working Group Internal Sub-Group**, STScI
Committee organizing periodic social events and a recurring reading group in an effort to cultivate a more inclusive work environment
2017-Pres. **"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

Computer: Proficient in Python (including pandas, matplotlib, astropy, scipy, pyqt, django; specific coursework in research methods, astrostatistics, and data mining)
Proficient in LabVIEW, Unix, and git
Familiar with LaTex
Familiar with HTML, CSS, and Javascript
Comfortable with both Mac and PC systems

Language: Spanish (intermediate speaking, reading, and writing)
French (intermediate reading, basic speaking and writing)

PROFESSIONAL MEMBERSHIPS

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

POSTERS & PRESENTATIONS

POSTERS

Jan. 2017 "Understanding Ammonia Chemistry in Protoplanetary Disks," 229th American Astronomical Society Winter Meeting

Oct. 2016 "Understanding Ammonia Chemistry in Protoplanetary Disks," National Society of Black Physicists Conference, Fermilab

Sept. 2016 "Understanding Ammonia Chemistry in Protoplanetary Disks," Yale Undergraduate Research Symposium

August 2015 "Modularized Software Control of the RIMAS Instrument for Rapid-Response Gamma Ray Burst Observations", NASA Goddard Space Flight Center Summer Student Poster Session

August 2013 "Characterization of the GaAsSb Photocathode with the Micro-Mott Electron Polarimeter", Jefferson Lab Summer Student Poster Session

PRESENTATIONS

October 2017	"Expanding Functionality of the Commissioning Tool for FGS," STScI Research & Instrument Analysis Branch Meeting
May 2017	"The Legacy of Black Physicists at Yale", History Keepers Project Symposium
April 2017	"A Different Kind of Dark Energy: Placing Race and Gender in Physics," Yale Mellon-Bouchet Fellowship Senior Symposium
April 2017	"A Different Kind of Dark Energy: Placing Race and Gender in Physics," Yale Astronomy Senior Thesis Colloquium
April 2017	"Understanding Ammonia Chemistry in Protoplanetary Disks," Yale Astronomy Senior Thesis Colloquium
April 2017	"A Different Kind of Dark Energy: Placing Race and Gender in Physics," Yale Undergraduate Ethnic Studies Colloquium
April 2017	"A Different Kind of Dark Energy: Placing Race and Gender in Physics," Yale African American Studies Senior Thesis Colloquium
Nov. 2017	"A Different Kind of Dark Energy: Placing Race and Gender in Physics," Timothy Dwight College Mellon Forum
Sept. 2017	"Understanding Ammonia Chemistry in Protoplanetary Disks," Mellon Mays Northeastern Regional Undergraduate Conference, Wellesley College
Sept. 2017	"Understanding Ammonia Chemistry in Protoplanetary Disks," Yale Astronomy Department Fall 2017 Undergraduate Kick-Off
August 2016	"Understanding Ammonia Chemistry in Protoplanetary Disks," Banneker Institute Symposium, Harvard-Smithsonian CfA
May 2016	"Design of a High-Purity Germanium Compton Spectrometer for the DM-Ice Dark Matter Search," Yale Wright Laboratory
March 2016	"Development of a Compton Spectrometer for the DM-Ice Dark Matter Search," Mellon Regional Writing and Research Symposium, Yale University
June 2013	"Functional Optimization of a Micro-mott Polarimeter for Gallium Arsenide Photocathode Analysis and Increased Electron Source Polarization," Governor's School for Science and Technology Senior Symposium