Stella Koch Ocker — Curriculum Vitae

Contact Information

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Space Sciences Building
122 Sciences Dr.
Ithaca, NY, 14850

Education

Ph.D. in Astronomy (in progress) — 2023 (expected)
M.S. in Astronomy — 2020
Cornell University, Ithaca NY

B.A. with High Honors — 2018
Major: Physics
Concentration: Astrophysics
Minor: English
Oberlin College, Oberlin OH

Research Interests

Radio transients, including fast radio bursts and pulsars;
Precision pulsar timing and its applications, including gravitational wave detection and tests of General Relativity;
Turbulence in the interstellar medium

Awards & Fellowships

Cranson and Edna B. Shelley Outstanding Teaching Assistant Award	2020
Honorable Mention, NSF Graduate Research Fellowship Competition	2020
Cornell Graduate Student Fellowship	2018-2019
Cornell Graduate Travel Grant	2019
Carl E. Howe Prize in Physics, Oberlin College	2018
Oberlin Physics & Astronomy Department Honors Program	2017-2018
Robert Weinstock Prize for Outstanding Achievement in Physics Coursework	2017
John Frederick Oberlin Merit Scholarship	2014-2018
Valedictorian, Sir Francis Drake High School	2014
Ellsworth Hagen Scholarship, Drake Scholarship Foundation	2014

Undergraduate Research Assistantships

Honors Program — 2017-18
Dept. of Physics & Astronomy, Oberlin College
Title: "Testing the Production of Scintillation Arcs with the Pulsar B1133+16"
Investigator: Prof. Dan Stinebring

McGill Space Institute, McGill University — Summers of 2017 & 2016
Title: "Modeling the Repeating Fast Radio Burst as a Poisson Process"
Title: "Searching for Neutral Hydrogen Absorption in the Repeating Fast Radio Burst"
Investigator: Prof. Victoria Kaspi

Dept. of Physics & Astronomy, San Francisco State University — 2016-2017
Title: "Modeling the retrieval of lens star spectra during microlensing events"
Investigator: Prof. Stephen Kane

Dept. of Physics & Astronomy, Oberlin College — 2015-2016
Title: "Testing Physical Models for the Production of Scintillation Arcs"
Investigator: Prof. Dan Stinebring

REU program — Summer 2015
National Solar Observatory
Title: "Characterizing the effects of spatial smoothing on solar magnetic helicity parameters and the solar hemispheric helicity sign rule"
Investigator: Dr. Gordon Petrie

Talks & Posters

Ocker SK, Cordes JM, Chatterjee S, Lam M, Jennings R. Assessing Chromatic Arrival Time Perturbations for NANOGrav's Error Budget. Poster. 235th AAS Meeting 2020.
Ocker SK, Rickett BJ, Stinebring D. A Multi-Frequency Scintillation Arc Study of Pulsar B1133+16. Poster. 233rd AAS Meeting 2019.
Ocker SK, Stinebring D. Multiple scintillation arcs in a nearby pulsar, B1133+16: crucial clues? Talk. University of Toronto Scintillometry with Pulsar VLBI Workshop 2017.
Ocker SK, Petrie G. The effects of spatial smoothing on solar magnetic helicity and the hemispheric helicity sign rule. Poster. 47th AAS/Solar Physics Division Meeting 2016.

Refereed Publications

Ocker SK, Cordes JM, Chatterjee S. Electron density structure of the local Galactic disk. *ApJ* 897:2. doi:10.3847/1538-4357/ab98f9 (2020)
Stinebring DR, Rickett BJ, Ocker SK. The frequency dependence of scintillation arc thickness in pulsar B1133+16. *ApJ.* 870:2. https://doi.org/10.3847/1538-4357/aaef80 (2019).
Ocker SK, Petrie G. The effects of spatial smoothing on solar magnetic helicity parameters and the hemispheric helicity sign rule. *ApJ.* 832:162. doi:10.3847/0004-637X/832/2/162 (2016).

Non-refereed Publications

Ocker SK. Testing the production of scintillation arcs with the pulsar B1133+16. Electronic Thesis. Oberlin College, 2018. *OhioLINK Electronic Theses and Dissertations Center*. http://rave.ohiolink.edu/etdc/view?acc_num=oberlin1526565414057674

Member Affiliations

Associate Member, North American Nanohertz Observatory for Gravitational Waves (NANOGrav) 2019-present

Graduate Student Member, American Astronomical Society (AAS) 2018-present

Graduate Student Member, American Physical Society (APS) 2019

Approved Observing Proposals

Title: "Pulsar Scintillation Arcs - An L-band Follow-up to Previous GBT Detections" 2017
Instrument: Greenbank Telescope, NRAO
Proposal ID: GBT18A-349
Proposal Authors: Jussila A, Ocker SK, Rickett BJ, McLaughlin M, Minter A, Stinebring DR

Teaching Experience

Cornell University Department of Astronomy

Head Teaching Assistant, *ASTRO 1102/1104: Our Solar System* 2020
Teaching Assistant, *ASTRO 1101/1103: From New Worlds to Black Holes* 2019

Oberlin College, Department of Physics & Astronomy

Teaching Assistant, *PHYS 111: Electricity, Magnetism, & Thermodynamics* 2017
Teaching Assistant, *PHYS 110: Mechanics & Relativity* 2016
Student Tutor, Quantitative Skills Center 2015-16

Outreach

Volunteer, Museum in the Dark, Museum of the Earth, Ithaca NY October 2020
Head Organizer, Museum in the Dark, Museum of the Earth, Ithaca NY October 2019
Organizer, Astronomy event with Cornell STEP program July 2019
Program Leader, 4-H Career Explorations, Cornell University June 2019
Workshop Volunteer, Expanding Your Horizons, Cornell University April 2019
Coordinator, Kids' Science Day at the Big Red Barn, Cornell University May 2019

Professional Service

Cornell University, Department of Astronomy

President, Astronomy Graduate Network 2020-2021

Description: Contributed to creation of Cornell Astronomy Graduate Student Handbook and the Astronomy Graduate Peer Mentoring Network

Secretary & Outreach Coordinator, Astronomy Graduate Network 2019-2020

Description: Organizing the weekly graduate student and post-doc seminar; lead organizer of all outreach events involving graduate students; coordinating graduate student lectures at Ithaca public libraries

Oberlin College, Department of Physics & Astronomy

Student Representative 2016-2018

Description: Gave student input at all faculty meetings; led student committee for 2017 faculty search; organized Women/Trans/Nonbinary in Physics Tea; organized annual departmental t-shirt contest; awarded Carl E. Howe Prize in Physics for service as student representative

Technical Skills

Python (expert-level)
Mathematica
Latex
IDL
Fortran
Operating Systems: Unix, Linux, Mac OS, Windows

Extracurricular

Cleanliness Coordinator, Kosher-Halal Cooperative, Oberlin College	2018
Head Treasurer, Kosher-Halal Cooperative, Oberlin College	2017
Assistant Treasurer, Kosher-Halal Cooperative, Oberlin College	2017
Treasurer, Ballet Oberlin, Oberlin College	2016-present
Chair, Ballet Oberlin, Oberlin College	2015