

NATHAN R. SANDFORD

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RESEARCH INTERESTS

Galactic Archeology, Galactic Chemical Evolution, Near-field cosmology;
Galaxy Formation & Evolution, Stellar Feedback/Yields;
Stellar Spectroscopy, Neural Networks

EDUCATION

Ph.D., Astrophysics, University of California, Berkeley in progress
Advisor: Dr. Dan Weisz

M.A., Astrophysics, University of California, Berkeley in progress
B.A., Physics, *magna cum laude*, Pomona College May 2017
Academic Advisor: Dr. Philip Choi
Research Advisor: Dr. Yu Lu
Thesis: “Exploring Gas-Phase Metallicity Gradients in Disc Galaxies: A Semi-Analytic Approach”

RESEARCH POSITIONS

Graduate Student, UC Berkeley 2017-
Summer Visiting Researcher, MPIA, Heidelberg 2018
Science Undergraduate Laboratory Intern, KIPAC/SLAC—Fermi-LAT Collaboration 2017
Undergraduate Research Assistant, Pomona College—KBO and NEA Survey 2016-2017
Summer Undergraduate Intern, The Carnegie Observatories 2016
Undergraduate Research Assistant, Pomona College—Bose-Einstein Condensate Lab 2014

HONORS & AWARDS

Magna Cum Laude, Pomona College 2017
The Frank Brackett, Jr., and Davida Brackett Prize, Pomona College 2017
Pomona College Senior Astronomy Award

Phi Beta Kappa, Pomona College 2016
Barry Goldwater Scholarship 2016
Tilestone Junior Physics Prize, Pomona College 2016
Tilestone Sophomore Physics Prize, Pomona College 2015
Moncrieff Astronomy Prize, Pomona College 2014
Pomona College Scholar 2013-2017
Comcast Leaders and Achievers Scholarship 2013

TEACHING

UC Berkeley

Head Graduate Student Instructor, Astro C10, *Introduction to General Astronomy* Fall 2018
Graduate Student Instructor, Astro C12, *The Planets* Spring 2018
Graduate Student Instructor, Astro C10, *Introduction to General Astronomy* Fall 2017

Pomona College

Student Mentor, Phys 142, *Electricity & Magnetism* Spring 2017
Student Mentor & Lab TA, Astro 101, *Techniques in Observational Astrophysics* Fall 2015/2016
Student Mentor, Astro 002, *Introduction to Galaxies and Cosmology* Spring 2016
Student Mentor, Phys 101, *Foundations of Modern Physics* Fall 2015
Lab TA, Astro 051, *Advanced Introductory Astronomy* Spring 2015

SERVICE

Co-PI, Conference Organizer & UC Berkeley Rep, Osterbrock Sierra Conference	2018-
Committee Member, Prospective Graduate Student Visit Planning Committee, UC Berkeley	2017-
Physics Department Liaison, Pomona College	2014-2017
Mentor, Pomona College Physics Cohort Program	2016
Committee Member, Pomona College Academic Affairs Team	2015
Construction Coordinator, Sierra Service Project	2014-2016
Youth Board Member, Sierra Service Project	2012

OUTREACH

Astronomy Department Exposition at Cal Day, UC Berkeley	2017
15th Annual Open House, The Carnegie Observatories	2016
Astronomy Department Founder's Day Exposition, Pomona College	2015
Science Night, Stork Elementary School	2014

OBSERVING EXPERIENCE

Keck/MOSFIRE (0.5 nights)	2018
Craft Observational Astronomy Workshop, Lick Observatory	2017
Pomona College Table Mountain Observatory (~30 nights)	2015-2017

GRANTS

Co-PI, Reviving the Sierra Conference: A Collaborative Meeting For UC Astronomy Graduate Students (Co-PI: Felipe Ardila, \$1500)	2017
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TALKS, POSTERS & PUBLICATIONS

Talks:

<i>The Sierra Conference: 50 Years Later</i> – GSPS, UC Berkeley	2018
<i>Doppler Shift and Thermal Emitters</i> – Astro C10 Lecture, UC Berkeley	2018
<i>Exploring Gas-Phase Metallicity Gradients in Disc Galaxies: A Semi-Analytic Approach</i> – Thesis Presentations, Pomona College	2017
<i>Searching for dark matter in dwarf galaxies with the Fermi-LAT</i> – SULI Research Presentations, KIPAC/SLAC	2016
<i>A Semi-Analytic Study of Metallicity Gradients in Disc Galaxies</i> – Summer Research Symposium, Pomona College	2015
<i>Studying Metallicity Profiles with a simple Semi-Analytic Model</i> – Tea Talk, The Carnegie Observatories	2015

Posters:

- Sandford, N., Charles, E. & Di Mauro, M. “Systematic Study of a Blind Search Pipeline for Dark Satellites.” 229th AAS Meeting, Grapevine, Tx, January 2017.
- Sandford, N. & Lu, Y. “A Semi-Analytic Study of Feedback Processes and Metallicity Profiles in Disc Galaxies.” 227th AAS Meeting, Kissimmee, Fl, January 2016.

Undergraduate Thesis:

- Sandford, N. “Exploring Gas-Phase Metallicity Gradients in Disc Galaxies: A Semi-Analytic Approach.” Thesis with distinction, Pomona College, May 2017.

SKILLS

Computer Languages	Python, C, R, Mathematica, L ^A T _E X, bash, git
Parallel Computing	Python multiprocessing
Other Software	MESA, FSPS, TOPCAT, Adobe Dreamweaver
Language	German (beginner)