

DHRUV MULEY

CURRICULUM VITAE

September 2019

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EDUCATION

B.A. Physics, B.A. Astrophysics, University of California, Berkeley 2016—2020 (*projected*)
Major GPA: 3.861 · Overall GPA: 3.845 · *Honors to Date*

Research Interests numerical hydrodynamics, exoplanets/protoplanetary disks,
galaxy evolution

Relevant Coursework *Undergraduate:* Statistical and Thermal Physics, Quantum Mechanics I-II,
Classical Mechanics, Mathematical Methods in Physics, Stellar Physics
Graduate: General Relativity, Radiative Processes in Astrophysics,
Classical Electrodynamics, Geophysical and Astrophysical Fluid Dynamics,
Galaxies
Italics denote in-progress coursework.

PUBLICATIONS

1. **Muley, Dhruv**; Wheeler, Coral; Hopkins, Philip; *et al.* “Time-dependent stellar yields in FIRE (working title),” *Monthly Notices of the Royal Astronomical Society* (in prep.)
2. Fung, Jeffrey; **Muley, Dhruv**. “A staggered semi-analytic method for simulating dust grains subject to gas drag,” *The Astrophysical Journal Supplement Series* (2019, accepted; ArXiv:1909.02006)
3. **Muley, Dhruv**; Fung, Jeffrey; van der Marel, Nienke. “PDS 70: A transition disk sculpted by a single planet,” *The Astrophysical Journal Letters*, 879, 1 (2019; ArXiv:1902.07191)

RESEARCH

SURF Fellow, California Institute of Technology 2019—
Advisor: Dr. Coral Wheeler, Prof. Philip F. Hopkins
Implementing yields and event rates for supernovae and stellar winds, from the Nu-Grid suite, into the GIZMO hydrodynamical code. Subsequently, running simulations to better constrain absolute and relative abundances of metals in dwarf galaxies. Caltech SURF fellowship award was \$6350 in 2019.

Undergraduate Researcher, University of California, Berkeley 2018–19
Advisor: Dr. Jeffrey Fung
Studied the morphology of the PDS 70 transition disk with the GPU-hydrodynamics code PEnGUIn. Subsequently, helped devise an improved method for integrating the trajectories of dust grains (e.g., in disks) subject to gas drag.

Affiliate , Lawrence Berkeley National Laboratory Advisor: Dr. Carlton Pennypacker	2017–18
Undergraduate Researcher , Columbia University (remote) Advisor: Prof. David Kipping	2016

TECHNICAL SKILLS

Advanced	Python, C/C++, Unix
Intermediate	CUDA, Java, Mathematica, L ^A T _E X
Basic	HTML, JavaScript, Photoshop, MPI

TEACHING

Reader , Physics 137B, University of California, Berkeley Instructor: Prof. Michael Crommie Graded roughly 60 homework assignments biweekly for Physics 137B, the second semester of upper division quantum mechanics at Berkeley, during Spring 2019.	2019
Undergraduate Student Instructor , Astronomy C10, University of California, Berkeley Instructor: Prof. Alex Filippenko Ran weekly discussion sections, devised worksheets and study materials, and graded exams for approximately 60 students in Astronomy C10, UC Berkeley’s survey course on astronomy for non-majors, during the Fall 2018 semester.	2018
Reader , Astronomy C10, University of California, Berkeley Instructor: Prof. Alex Filippenko Graded roughly 100 homework assignments per week for Astronomy C10.	2017

TALKS AND CONFERENCES

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|---|--------------------|
| 1. Discussion leader at UC Berkeley ExoCoffeeTea exoplanet journal club | September 25, 2019 |
| 2. “PDS 70: A transition disk sculpted by a single planet”
Talk at UC Berkeley Astronomy Thursday Lunch | February 14, 2019 |

OUTREACH

Member , Undergraduate Astrophysics Service Committee, University of California, Berkeley Advisor: Amber Banayat, Prof. Mariska Kriek Devised plans to improve recruitment and retention of astrophysics majors.	2019—
Mentor , Be a Scientist program, Martin Luther King Jr. Middle School, Berkeley Advisor: Darlene Yan Worked with students in Berkeley aged 11-14 to develop scientifically testable hypotheses, devise and conduct experiments, and analyze results.	2018

LANGUAGES

English Fluent; professional working proficiency
Spanish Professional working proficiency
Marathi Basic

REFERENCES

Available upon request.