

# DHRUV MULEY

## CURRICULUM VITAE

September 2019

e-mail: [dmuley@berkeley.edu](mailto:dmuley@berkeley.edu)  
cell: (510) 579-9337  
Send correspondence to:  
501 Campbell Hall, University of California  
Berkeley, CA 94720  
website: [dmuley.github.io](http://dmuley.github.io)  
citizenship: United States

## 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*, 244, 2 (2019; 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.

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

## TECHNICAL SKILLS

---

<b>Advanced</b>	Python, C/C++, Unix
<b>Intermediate</b>	CUDA, Java, Mathematica, L <sup>A</sup> T <sub>E</sub> X
<b>Basic</b>	HTML, JavaScript, Photoshop, MPI

## TEACHING

---

<b>Reader</b> , 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
<b>Undergraduate Student Instructor</b> , 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
<b>Reader</b> , Astronomy C10, University of California, Berkeley Instructor: Prof. Alex Filippenko Graded roughly 100 homework assignments per week for Astronomy C10.	2017

## TALKS AND CONFERENCES

---

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

## OUTREACH

---

<b>Member</b> , 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—
<b>Mentor</b> , 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.