

# Ryan A. Rubenzahl

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## CONTACT INFORMATION

### California Institute of Technology

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## EDUCATION

### California Institute of Technology, Pasadena, CA

**Ph.D.** in Astrophysics

**Anticipated 2024**

- Thesis Advisor: Andrew Howard

**M.S.** in Astrophysics

**June 2021**

### University of Rochester, Rochester, NY

**B.S.** in Physics & Astronomy

**May 2018**

- *Magna cum laude* with highest distinction
- Minor in Mathematics
- Thesis Title: *Identifying Type Ia Supernovae in Extragalactic Spectra*
- Thesis Advisor: Segev BenZvi

## RESEARCH INTERESTS

### Exoplanets, radial velocity, small planet demographics:

Exoplanet detection, characterization, demographics, compositions; orbit determination, obliquities, orbital dynamics; EPRV instrumentation, sun-as-a-star, stellar activity mitigation

## HONORS AND AWARDS

- |            |  |
|------------|--|
| 2018       | NSF Graduate Research Fellowship                                       |
| 2018       | Stoddard Prize for best thesis in Physics & Astronomy, U. of Rochester |
| 2018       | Janet Fogg Prize for department service, U. of Rochester               |
| 2018       | Undergraduate Teaching Award, U. of Rochester                          |
| 2017       | Barry M. Goldwater Scholarship   |
| 2017       | Award for Excellence in Programming: Earth Hour, U. of Rochester       |
| 2016, 2017 | Continuing Student Scholarship, U. of Rochester                        |
| 2014       | Bausch and Lomb Honorary Science Award & Scholarship                   |

## TEACHING & ADVISING EXPERIENCES

### California Institute of Technology, Pasadena, CA

#### Astrophysics Department

Graduate Teaching Assistant

**Fall 2019 – Spring 2020**

- Ay 105 (remote): Optical Instrumentation Lab, Spring 2020
- Ay 124: Structure and Evolution of Galaxies, Winter 2020
- Ay 122a: Optical/IR Measurements and Instrumentation, Fall 2019

### University of Rochester, Rochester, NY

#### College Center for Advising Services

Peer Adviser (Physics & Astronomy)

**Fall 2017 – Spring 2018**

Department of Physics & Astronomy

Undergraduate Teaching Assistant      **Spring 2015 – Spring 2018**

- AST 142: Elementary Astrophysics (Honors), Spring 2018
- AST 111: The Solar System & Its Origin, Fall 2017
- AST 142: Elementary Astrophysics, Spring 2017
- PHY 141 Laboratory: Mechanics (Honors), Fall 2016
- AST 102: Relativity, Black Holes, and the Big Bang, Spring 2016
- AST 106: Cosmic Origins of Life, Fall 2016
- AST 104: The Solar System, Spring 2015

STUDENT  
MENTORSHIP

**California Institute of Technology**, Pasadena, CA

Aanica Gonzales-Rogers, Caltech Undergraduate      **Summer 2020**

- Project: *Estimating the Expected Detectability of Exoplanets with Gaia*

LEADERSHIP &  
SERVICE  
POSITIONS

**C.E.K. Mees Observatory**, Naples, NY

Student Tour Guide      **Summers 2015 – 2018**

**University of Rochester**, Rochester, NY

President, *Astronomy Club*      **Fall 2015 – Fall 2017**

Secretary, *Society of Physics Students (SPS)*      **Fall 2015 – Fall 2016**

CONFERENCE  
TALKS &  
POSTERS

- |          |               |   |
|----------|---------------|---|
| Jan 2020 | Talk          | AAS 235, Honolulu, Hawai'i                              |
| Sep 2019 | Talk          | Keck Science Meeting, UCLA                              |
| Aug 2019 | Poster 309.08 | Extreme Solar Systems IV, Reykjavik, Iceland            |
| Jan 2018 | Poster 250.05 | AAS 231, National Harbor, MD                            |
| Apr 2017 | Talk          | Rochester Symposium for Physics Students, Rochester, NY |
| Apr 2016 | Talk          | Rochester Symposium for Physics Students, Rochester, NY |

PRESS & PUBLIC  
OUTREACH

- |          |                  |                                       |
|----------|------------------|---------------------------------------|
| Mar 2021 | supercluster.com | PopSci article on WASP-107b           |
| Jun 2020 | youtube.com      | Public talk for CaltechAstro outreach |

SELECTED  
PUBLICATIONS

*First author papers or other refereed works on which I was significantly involved.*

1. **Rubenzahl, R. A.**, Dai, F., Howard, A. W., et. al, *The TESS-Keck Survey. IV. A Retrograde, Polar Orbit for the Ultra-low-density, Hot Super-Neptune WASP-107b*, **AJ**, 161, 119, (2021)
2. Piaulet, C., Benneke, B., **Rubenzahl, R. A.**, et. al, *WASP-107b's Density Is Even Lower: A Case Study for the Physics of Planetary Gas Envelope Accretion and Orbital Migration*, **AJ**, 161, 70, (2021)

PUBLICATIONS  
AS CO-AUTHOR

*Other refereed papers I contributed to as an observer or collaborator*

1. Dai, F., et al. *The TESS-Keck Survey. III. A Stellar Obliquity Measurement of TOI-1726 c*, **AJ**, 160, 193, (2020)

	<ol style="list-style-type: none"> <li>Weiss, L. M., et al. <i>The TESS-Keck Survey. II. An Ultra-short-period Rocky Planet and Its Siblings Transiting the Galactic Thick-disk Star TOI-561</i>, <b>AJ</b>, 161, 56, (2021)</li> <li>Dalba, P. A. et al., <i>The TESS-Keck Survey. I. A Warm Sub-Saturn-mass Planet and a Caution about Stray Light in TESS Cameras</i>, <b>AJ</b>, 159, 241, (2020)</li> <li>Kosiarek, M. R., et al. <i>Physical Parameters of the Multiplanet Systems HD 106315 and GJ 9827</i>, <b>AJ</b>, 161, 47, (2021)</li> </ol>
CONFERENCE PROCEEDINGS	<ol style="list-style-type: none"> <li><b>Rubenzahl, R.</b>, BenZvi, S., and Wood, J., <i>Limits on the Emission of Gamma Rays from M31 (The Andromeda Galaxy) with HAWC</i>, in <i>Proceedings of 35th ICRC</i>, PoS(ICRC2017)594 (1708.03012), 2017.</li> <li>Rho, C.D., <b>Rubenzahl, R.</b>, and BenZvi, S., <i>Searching for TeV Gamma-ray Emission from Binary Systems with HAWC</i>, in <i>Proceedings of 35th ICRC</i>, PoS(ICRC2017)742 (1708.03726), 2017.</li> </ol>
OBSERVING EXPERIENCE	<ul style="list-style-type: none"> <li>• 30 nights on Keck-HIRES</li> <li>• 1 night on Palomar-WIRC+Pol/TripleSpec (+ data reduction &amp; analysis)</li> <li>• ~ 50 nights at C.E.K. Mees Observatory (8 CCD imaging and ~ 40 outreach)</li> </ul>
COMPUTER AND HARDWARE SKILLS	<p>Computer Programming &amp; Data Analysis:</p> <ul style="list-style-type: none"> <li>• Python (proficient), Mathematica, SQL, Java, C, C++</li> <li>• UNIX shell scripting (Bash)</li> <li>• Simple Linux Utility for Resource Management (SLURM)</li> <li>• SAOImage DS9, TheSky6, CCDSoft, CCDStack</li> </ul> <p>Document Editing and Productivity Software:</p> <ul style="list-style-type: none"> <li>• T<sub>E</sub>X (L<sup>A</sup>T<sub>E</sub>X, B<sub>I</sub>B<sub>T</sub>E<sub>X</sub>)</li> <li>• Microsoft Office, Mac iWork Suite, Google Docs</li> </ul> <p>Operating Systems:</p> <ul style="list-style-type: none"> <li>• Mac OS, Linux</li> </ul> <p>Lab Skills</p> <ul style="list-style-type: none"> <li>• Basic optics assembly, integration, and testing</li> </ul>
PROFESSIONAL MEMBERSHIPS	<p>American Astronomical Society (AAS)  American Physical Society (APS)  Phi Beta Kappa Academic Honor Society (ΦBK)  Sigma Pi Sigma, National Physics Honor Society (ΣΠΣ)</p>
LANGUAGES	English (native), Spanish (basic)
CITIZENSHIP	United States of America

*This CV was last updated on June 11, 2021.*