Arjun B. Savel

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Education

University of Maryland, College Park — College Park, MD
Ph.D., Astronomy — *Expected*
M.S., Astronomy | Advisor: Eliza M.-R. Kempton — *2022, Expected*

University of California, Berkeley — Berkeley, CA
B.A., Astrophysics; B.A., Physics | Advisor: Courtney D. Dressing — *2020*

Research Interests

- Extracting 3-D information from exoplanet atmospheres at high spectral resolution
- Statistically constraining exoplanet properties, especially with respect to habitability
- Characterizing exoplanetary systems and host stars

Publications

citations: 67 / h-index: 5 (2021-12-28)

Refereed Publications

7 de Leon, J. P.; Livingston, J.; Endl, M.; Cochran, W. D.; *et al.* (23 other co-authors, incl. **Savel, Arjun**), 2021, *37 new validated planets in overlapping K2 campaigns*, MNRAS, **508**, 195 (arXiv:2108.05621) [2 citations]

6 May, Erin M.; Komacek, Thaddeus D.; Stevenson, Kevin B.; Kempton, Eliza M. -R.; *et al.* (14 other co-authors, incl. **Savel, Arjun**), 2021, *Spitzer Phase-curve Observations and Circulation Models of the Inflated Ultrahot Jupiter WASP-76b*, AJ, **162**, 158 (arXiv:2107.03349) [7 citations]

5 Cloutier, Ryan; Charbonneau, David; Stassun, Keivan G.; Murgas, Felipe; *et al.* (62 other co-authors, incl. **Savel, Arjun**), 2021, *TOI-1634 b: An Ultra-short-period Keystone Planet Sitting inside the M-dwarf Radius Valley*, AJ, **162**, 79 (arXiv:2103.12790) [4 citations]

4 Foreman-Mackey, Daniel; Luger, Rodrigo; Agol, Eric; Barclay, Thomas; *et al.* (12 other co-authors, incl. **Savel, Arjun**), 2021, *exoplanet: Gradient-based probabilistic inference for exoplanet data & other astronomical time series*, The Journal of Open Source Software, **6**, 3285 (arXiv:2105.01994) [16 citations]

3 Rodriguez, Joseph E.; Quinn, Samuel N.; Zhou, George; Vanderburg, Andrew; *et al.* (114 other co-authors, incl. **Savel, Arjun**), 2021, *TESS Delivers Five New Hot Giant Planets Orbiting Bright Stars from the Full-frame Images*, AJ, **161**, 194 (arXiv:2101.01726) [9 citations]

2 **Savel, Arjun**; Dressing, Courtney D.; Hirsch, Lea A.; Ciardi, David R.; *et al.*, 2020, *A Closer Look at Exoplanet Occurrence Rates: Considering the Multiplicity of Stars without Detected Planets*, AJ, **160**, 287 (arXiv:2011.09564) [6 citations]

1 Demory, B. -O.; Pozuelos, F. J.; Gómez Maqueo Chew, Y.; Sabin, L.; *et al.* (69 other co-authors, incl. **Savel, Arjun**), 2020, *A super-Earth and a sub-Neptune orbiting the bright, quiet M3 dwarf TOI-1266*, A&A, **642** (arXiv:2009.04317) [20 citations]

Preprints

2 **Savel, Arjun**; Kempton, Eliza M. -R.; Malik, Matej; Komacek, Thaddeus D.; *et al.*, 2021, *No umbrella needed: Confronting the hypothesis of iron rain on WASP-76b with post-processed general circulation models*, ArXiv (arXiv:2109.00163) (in press) [3 citations]

1 Murakami, Yukei S.; Jennings, Connor; Hoffman, Andrew M.; Sunseri, James; *et al.* (6 other co-authors, incl. **Savel, Arjun**), 2021, *PIPS, an advanced platform for period detection in time series – I. Fourier-likelihood periodogram and application to RR Lyrae Stars*, ArXiv (arXiv:2107.14223)

Selected Honors, Prizes, & Awards

- Gregor and Donat Wentzel Scholarship, University of Maryland (2020)
- Student commencement speaker, UC Berkeley Astronomy Department (2020)
- [‡]Chambliss Astronomy Achievement Award Student Prize, AAS 235 (2020)
- [†]Outstanding Graduate Student Instructor Award, UC Berkeley (2020)
- [*]1st place, Astronomy Poster Summer Intern Symposium, UC Berkeley (2019)
- Student Technology Fund grant for ULAB, UC Berkeley (2018)
- Ongoing Physics Department award for ULAB, UC Berkeley (2018)

Science Talks & Posters

10 **Arjun Savel**, 2021. "No umbrella needed: Confronting the hypothesis of iron rain on WASP-76b with post-processed general circulation models", ExoCoffee, MPIA Heidelberg.

9 **Arjun Savel**, 2021. "No umbrella needed: Confronting the hypothesis of iron rain on WASP-76b with post-processed general circulation models", Astronomy and Space Physics Seminar, University of Kansas.

8 Courtney D. Dressing, Steven Giacalone, Ellianna S. Abrahams *et al.* (7 other co-authors, incl. **Arjun Savel**), 2020. "Using TESS to Investigate the Frequency of Planetary Systems Orbiting Cool Dwarfs", AAS 235, Honolulu.

7 ‡**Arjun Savel**, Courtney D. Dressing, Lea Hirsch, David Ciardi, Jordan P.C. Fleming, Steven Giacalone, Andrew W. Mayo, Jessie L. Christiansen, 2020. "A closer look at planet occurrence rates: AO follow-up of 71 stars in the Kepler field", AAS 235, Honolulu.

6 **Arjun Savel**, Courtney D. Dressing, Lea Hirsch, David Ciardi, Jordan P.C. Fleming, Steven Giacalone, Andrew W. Mayo, Jessie L. Christiansen, 2019. "A Closer Look at Exoplanet Occurrence Rates: Considering the Multiplicity of Stars without Detected Planets", Bay Area Exoplanet Meeting #31, NASA Ames

5 **Arjun Savel**, Courtney D. Dressing, Lea Hirsch, David Ciardi, Jordan P.C. Fleming, Steven Giacalone, Andrew W. Mayo, Jessie L. Christiansen, 2019. "A Closer Look at Exoplanet Occurrence Rates: The Impact of Stars Without Exoplanets", Bay Area Planetary Sciences Meeting, Stanford University.

4 **Arjun Savel**, 2019. "Earth: Rare or Regular?", Undergraduate Seminars, UC Berkeley.

3 *__Arjun Savel__, Courtney D. Dressing, Lea Hirsch, David Ciardi, Jordan P. C. Fleming, Jessie L. Christiansen, 2019. "A closer look: AO follow-up of 109 stars in the Kepler and K2 fields", APSIS Poster Session, UC Berkeley.

2 Courtney D. Dressing, **Arjun Savel** *et al*. 2019. "Characterizing Planetary Systems Orbiting TESS Cool Dwarfs", TESS Science Conference I, MIT.

1 Steven Giacalone, Courtney Dressing, **Arjun Savel**, 2019. "Validation of TESS Exoplanet Candidates", 3rd Advanced School on Exoplanetary Science, Vietri sul Mare.

Public Talks

3 **Arjun Savel**. Gloucester Area Astronomy Club, January 2021.

2 **Arjun Savel**. Amateur Astronomers, Inc. December Meeting, 2020.

1 Courtney D. Dressing, Steven Giacalone, Andrew W. Mayo, **Arjun Savel**. Evening with the Stars, UC Berkeley, 2020.

Observing Experience

3-meter Shane Telescope (ShARCS): assisted with 13.5 nights (Mt. Hamilton, CA)
10-meter Keck Telescope (NIRC2): assisted with 1/2 night (Mauna Kea, HI)
10-meter Keck Telescope (NIRSPEC): assisted with 1/2 night (Mauna Kea, HI)

Teaching Experience

Undergraduate Student Instructor, Astronomy C12 (The Planets): UC Berkeley, under Courtney D. Dressing and Raymond Jeanloz (2020)

†**Undergraduate Student Instructor, Astronomy C10 (Introduction to General Astronomy)**: UC Berkeley, under Alex Filippenko (2018-19)

Community Involvement

- Reviewer, Journal of Open Source Software (2 projects reviewed) (2020)
- BANG! Seminar Organizing Committee, University of Maryland, College Park (2021–present)
- EDI Committee, University of Maryland, College Park (2020–present)
- GRAD-MAP Team Member, University of Maryland, College Park (2020–present)
- Mentor, TARDIS Google Summer of Code (2020)
- Public Liaison for Prof. Alex Filippenko (2019–present)
- Undergraduate Representative, Astronomy Department, UC Berkeley (2019-20)
- Mentor, Berkeley Astronomy Scholars Program (2019-20)
- Director of Physics and Astronomy, Undergraduate Lab at Berkeley (ULAB) (2018-19)
- Night Editor, The Daily Californian (2017)

References available upon request. Last updated: 2021-12-29. CV version tag linked here.

Workshops & Conferences

- Chesapeake Bay Area Exoplanet Meeting (Spring 2021)
- Exoplanet atmosphere characterization: from HST and Spitzer to JWST (2021)
- JWST Master Class Workshop, Stanford University (2020)
- AAS Winter Meeting (2020)
- Bay Area Exoplanet Meeting, NASA Ames (Spring 2019, Winter 2019, Spring 2020)
- Bay Area Planetary Science Meeting, Stanford University (2019)

Skills & Assets

- **Programming / Markup Languages**: Python, ADQL/SQL, R, C, HTML, PHP, JavaScript, LaTeX
- **Clusters**: *deepthought2* at UMD, College Park; *moria* at MSU
- **Frameworks / Tools**: git, SLURM, Numba, SciPy, NumPy, TensorFlow, Pandas, React
- **Misc. Skills**: MCMC, neural networks, astronomical image reduction, radiative transfer, open-source code management, web development / automation, copy editing
- **Languages**: English (fluent), Spanish (conversational)

References available upon request. Last updated: 2021-12-29. CV version tag linked here.