

# Rebecca L. Larson

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## EDUCATION

### UNIVERSITY OF TEXAS AUSTIN

#### PH.D. IN ASTRONOMY

Galaxy Evolution in the Early Universe  
Expected 2022

#### M.A. IN ASTRONOMY

Galaxies in the Early Universe  
2018 | GPA: 3.8

#### B.S. IN ASTRONOMY

#### B.S. IN PHYSICS

Honors in Astronomy  
2016 | GPA: 3.2

### DEFENSE LANGUAGE INSTITUTE

#### A.A. IN ARABIC

2006 | GPA: 4.0

## LINKS

Website: [www.saturnswings.com](http://www.saturnswings.com)

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## SKILLS

### PROGRAMMING

IDL • Python • Bash

### WRITING

National Grant Fellowships

Telescope Proposals

Peer-Reviewed Research Publications

### OBSERVING

8 Nights - Keck Observatory

### MENTORING

REU Research Advisor

## INTERESTS

Public Outreach

Science Communication

Volunteer Service

Reading • Travelling

## WORK EXPERIENCE

### THE UNIVERSITY OF TEXAS AT AUSTIN | GRADUATE STUDENT + RESEARCH ASSISTANT + TEACHING ASSISTANT

Jun 2016 - Ongoing | Austin, TX

Created a line finding code to search for emission from galaxies in the epoch of reionization. Discovered a new  $z=7.452$  galaxy. Leader of a search for distant galaxies at the Keck Observatory.

### UNDERGRADUATE STUDENT + RESEARCH ASSISTANT + GRADER

Aug 2013 - May 2016 | Austin, TX

Discovered the first observational evidence of the decay of turbulence in dense molecular clouds. Graded assignments for lower division undergraduate astronomy classes totaling over 1,500 students.

### UNITED STATES AIR FORCE | ARABIC LINGUIST

Oct 2004 - Oct 2010 | Fort Meade, MD

Worked translating audio and written sources between Arabic and English. Handled classified intelligence information with a top secret clearance. Monitored multiple databases. Managed team of eight translators. Provided on-site training to implement a new and improved training program.

## AWARDS

### FELLOWSHIPS + SCHOLARSHIPS

- National Science Foundation Graduate Research Fellowship (NSF-GRFP), 2018
- IPAC Visiting Graduate Student Fellowship, Caltech, Feb 2018
- Dean's Honored Graduate Award, UT Austin, College of Natural Sciences, - May 2016
- Ralph Cutler Green Endowed Scholarship, UT Austin, Department of Astronomy, - May 2015
- Karl G. Henize Endowed Scholarship, UT Austin, Department of Astronomy, - May 2014

### ACHIEVEMENTS

- Top Ten - Student Veteran of the Year, Student Veterans of America, Jan 2020
- Chambliss Poster Presentation Award, AAS, Jan 2019
- Student Veteran Academic Leadership Award, UT Austin, Office of the Dean of Students, - May 2015

# FUNDED GRANT PROPOSALS

## PRINCIPLE INVESTIGATOR

- National Science Foundation Graduate Research Fellowship (NSF-GRFP), Understanding Galaxy Evolution Since the Beginning, 2019 - 2022

## CO-INVESTIGATOR

- NASA Astrophysics Data Analysis Program (NASA-ADAP), Leveraging Spitzer and HETDEX to Constrain Reionization, 2019-2022
- MPS Graduate Research Supplement for Veterans (MPS-GRSV), Spectroscopic Probes of Reionization and Galaxy Evolution in the First Billion Years, 2018 - 2019
- NASA Astrophysics Data Analysis Program (NASA ADAP), Reference Ultraviolet Luminosity Functions for the JWST Era, 2017 - 2020
- MPS Graduate Research Supplement for Veterans (MPS-GRSV), Spectroscopic Probes of Reionization and Galaxy Evolution in the First Billion Years, 2017 - 2018

# FUNDED TELESCOPE PROPOSALS

## PRINCIPLE INVESTIGATOR

- McDonald Observatory - Hobby Eberly Telescope/LRS2 2019-3 - 9 hours, Spectroscopically Confirming the Brightest High-Redshift Galaxies in SHELA, Fall 2019
- NASA Keck Observatory/MOSFIRE 2019B - Two Nights, Islands of Reionization, Dec 2019
- NASA Keck Observatory/MOSFIRE 2019A - Two Nights, Islands of Reionization, Mar 2019
- NASA Keck Observatory/MOSFIRE 2018B - Two Nights, Islands of Reionization, Nov 2018
- NASA Keck Observatory/MOSFIRE 2018A - Two Nights, Islands of Reionization, Apr 2018
- McDonald Observatory - Hobby Eberly Telescope/LRS2 2017-2 - 13 hours, Confirmation of Ly $\alpha$  Emission in Galaxies at the End of Reionization, Fall 2017
- McDonald Observatory - Hobby Eberly Telescope/LRS2 2017-1 - 13 hours, Confirmation of Ly $\alpha$  Emission in Galaxies at the End of Reionization, Spring 2017

## CO-INVESTIGATOR

- NASA Keck Observatory/MOSFIRE 2020A - Two Nights, Using Nebular UV Metal Lines to Probe Redshifts and Physical Conditions in Galaxies During Reionization, Feb 2020
- NASA Hubble Space Telescope - 15 Orbits, Confirmation of a Large, Robust Sample of  $z=9-10$  Galaxies in the CANDELS Fields, 2019
- NASA Hubble Space Telescope - 5 Orbits, Observations of the JWST/GTO Very Rich Cluster Lens RMJ121218.5+273255.1, 2019
- ALMA Cycle 7 - 88  $\mu\text{m}$  Line Observations of Four Remarkably Luminous Galaxies at  $z \sim 9-10$ , 2019
- ALMA Cycle 7 - Confirming the Quiescent Nature of Galaxies at  $z = 4$ , 2019
- NASA Keck Observatory/NIRES 2019B - Two Nights, Spectroscopic Characterization of the Brightest Known Galaxy Candidate at  $z > 9$ , Jan 2020
- NASA Spitzer Space Telescope - 687hr IRAC, The Euclid Deep Field South, 2019
- NASA Hubble Space Telescope - 2 orbits, Cycle 26 - Photometric Confirmation of the Brightest Known Galaxy Candidate at  $z > 9$ , 2019
- McDonald Observatory - Hobby Eberly Telescope/VIRUS 2017-2 - 13 hours, TESLA: The Texas Euclid Survey for Lyman Alpha, Fall 2018
- Co-I - James Webb Space Telescope Early Release Science (JWST ERS), The Cosmic Evolution Early Release Science (CEERS) Survey, Nov 2017

# PUBLICATIONS

## FIRST-AUTHORED PAPERS

- Larson, R. L., Finkelstein, S. L., Hutchison, T. A., et al., Islands of Reionization: Discovery of a Potential  $z = 8.7$  Overdensity in EGS - 2020, in prep
- Larson, R. L., Faisst, A., Capak, P., et al., Cluster- $z$ : Using Correlation Functions to Measure Redshift Distributions - 2020, in prep
- Larson, R. L., Finkelstein, S. L., Pirzkal, N., et al., Discovery of a  $z = 7.452$ , High-Equivalent-Width Lyman- $\alpha$  Emitter from the Hubble Space Telescope Faint Infrared Grism Survey - 2018, ApJ, 858, 94
- Larson, R. L., Evans, N. J., II, Green, J. D., Yang, Y.-L., Evidence for Decay of Turbulence by MHD Shocks in the ISM via CO Emission - 2015, ApJ, 806, 70

## CONTRIBUTING-AUTHORED PAPERS

- Jung, I., Finkelstein, S. L., Dickinson, M., et al., (Larson, R. L. 5 of 15) Texas Spectroscopic Search for Ly $\alpha$  Emission at the End of Reionization II. The Deepest Near-Infrared Spectroscopic Observation at  $z7$  - 2019, ApJ, 877, 146
- Fogarty, K., Postman, M., Larson, R. L., et al., The Relationship Between Brightest Cluster Galaxy Star Formation and the Intracluster Medium in CLASH - 2017, ApJ, 846, 103
- Pirzkal, N., Malhotra, S., Ryan, R. E., et al., (Larson, R. L. 9 of 29), FIGS - Faint Infrared Grism Survey: Description and Data Reduction - 2017, ApJ, 846, 84

## CO-AUTHORED PAPERS

- Rojas-Ruiz, S., Finkelstein, S. L., Bagley, M., et al., (Larson, R. L. 6 of 8) Probing the Bright End of the Rest-Frame Ultraviolet Luminosity Function at  $z = 8-10$  with Hubble Pure-Parallel Imaging - 2020, submitted
- Pharo, J., Malhotra, S., Rhoads, J., et al., (Larson, R. L. 18 of 21) A Catalog of Emission-line Galaxies from the Faint Infrared Grism Survey: Studying Environmental Influence on Star Formation - 2020, ApJ, 888, 79
- Pirzkal, N., Rothberg, B., Ryan, R. E., et al., (Larson, R. L. 16 of 24), A Two-dimensional Spectroscopic Study of Emission-line Galaxies in the Faint Infrared Grism Survey (FIGS). I. Detection Method and Catalog - 2018, ApJ, 868, 61
- Jung, I., Finkelstein, S. L., Livermore, R. C., et al., (Larson, R. L. 8 of 8), Texas Spectroscopic Search for Ly $\alpha$  Emission at the End of Reionization I. Constraining the Ly $\alpha$  Equivalent-width Distribution at  $6.0 < z < 7.0$  - 2018, ApJ, 864, 103
- Yang, Y. L., Green, J. D., Evans, N. J., II, et al. (Larson, R. L. 15 of 16), CO in Protostars (COPS): Herschel-SPIRE Spectroscopy of Embedded Protostars - 2018, ApJ, 860, 174
- Green, J. D., Yang, Y.-L., Evans, N. J., II, et al., (Larson, R. L. 8 of 9), The CDF Archive: Herschel PACS and SPIRE Spectroscopic Data Pipeline and Products for Protostars and Young Stellar Objects - 2016, AJ, 151, 75

## WHITE PAPERS

- Windhorst, R. A., Alpaslan, M., Andrews, S., et al. (Larson, R. L. 26 of 47), On the observability of individual Population III stars and their stellar-mass black hole accretion disks through cluster caustic transits - 2019, arXiv:1903.06527
- Koekemoer, A. M., Foley, R. J., Spergel, D. N., et al. (Larson, R. L. 36 of 72), An Ultra Deep Field survey with WFIRST - 2019, arXiv:1903.06154
- Finkelstein, S. L., Bradac, M., Casey, C., et al. (Larson, R. L. 12 of 18), Unveiling the Phase Transition of the Universe During the Reionization Epoch with Lyman-alpha - 2019, arXiv:1903.04518

## PROCEEDINGS

- Larson, R. L., Jogee, S., Watson, N., et al., Probing Early Galaxy Growth and Dusty Star-Forming Systems Across Diverse Environments in the 28 deg<sup>2</sup> Herschel/Stripe82/HETDEX Field - 2015, Frank N. Bash Symposium (BASH2015)

## CATALOGS

- Yang, Y.-L., Green, J. D., Evans, N. J., II, et al., (Larson, R. L. 15 of 16), VizieR Online Data Catalog: CO in Protostars (COPS): Herschel spectroscopy -2019, VizieR Online Data Catalog
- Green, J. D., Yang, Y.-L., Evans, N. J., II, et al., (Larson, R. L. 8 of 9), VizieR Online Data Catalog: Herschel-PACS and -SPIRE spectroscopy of 70 objects -2016, VizieR Online Data Catalog, 515

## TEACHING

- TA - Intro to Astronomy for Non-Science Majors, 200 students, Fall 2018

## ADVISING

- REU Science Advisor for UT Austin REU Student, Blakely Aaronson Summer 2019
- Informal Mentor for UT Austin TAURUS Summer Student, Oscar Chavez-Ortiz Summer 2019

## PRESENTATIONS

### INVITED CONFERENCE TALKS

- Conference for Undergrad Women in Physics (CUWiP), Jan 2020, - College Station, TX - Panelist
- Student Veterans of America National Conference, Jan 2020, - Los Angeles, CA - Presenter
- WFIRST/LSST/EUCLID Deep Field Coordination, Aug 2018, Princeton, NJ - Invited Talk

### CONFERENCE TALKS

- Keck Science Meeting 2019, Sep 2019, UCLA - Los Angeles, CA
- 'Barefoot EoR' Exploring the first billion years of the Universe, Jul 2019, Cairns, Australia
- COSMOS Meeting, Jun 2018, DAWN Institute - Copenhagen, Denmark
- GISS IPAC Talk Series, Jun 2018, Caltech - Pasadena, CA
- CANDELS SED Fitting Meeting, Apr 2018, UC Riverside - Riverside, CA
- Star Formation in the JWST Era, Oct 2017, Texas A&M University - College Station, TX
- Spectral Diagnostics to Explore the Cosmic Dawn with JWST, Aug 2017, Space Telescope Science Institute - Baltimore, MD
- The Snowbird Cosmic Lyman-Alpha Workshop (SnowCLAW), Mar 2017, Salt Lake City, UT

### CONFERENCE POSTERS

- American Astronomical Society Winter Meeting, Jan 2020, Honolulu, HI
- Frank N. Bash Symposium, Oct 2019, UT Austin - Austin, TX
- IAU Symposium 352 - Uncovering Early Galaxy Evolution in the ALMA and JWST Era, Jun 2019, Viana do Castelo, Portugal
- American Astronomical Society Winter Meeting, Jan 2019, Seattle, WA
- Keck Science Meeting, Sep 2018, Caltech - Pasadena, CA
- American Astronomical Society Winter Meeting, Jan 2018, Washington, D.C.
- Frank N. Bash Symposium, Oct 2017, UT Austin - Austin, TX
- American Astronomical Society Summer Meeting, Jun 2017, Austin, TX
- American Astronomical Society Winter Meeting, Jan 2017, Grapevine, TX

- American Astronomical Society Winter Meeting, Jan 2016, Orlando, FL
- Frank N. Bash Symposium, Oct 2015, UT Austin - Austin, TX
- International Astronomical Union XXIX General Assembly, June 2015, Honolulu, HI - 2 Posters
- Frank N. Bash Symposium, Oct 2013, UT Austin - Austin, TX

## PUBLIC OUTREACH TALKS

- Astronomy on Tap ATX; Austin, TX, Nov 2018
- Astronomy on Tap LA; Pasadena, CA, Jul 2018
- Astronomy on Tap Santa Barbara; Santa Barbara, CA, May 2018
- Austin Astronomical Society General Meeting; Austin, TX, Oct 2017
- Astronomy on Tap ATX; Austin, TX, Apr 2016

## WORKSHOPS

- JWST Master Class Workshop; College Station, TX Feb 2020 - LOC
- JWST Master Class Workshop; Austin, TX Jan 2020 - LOC
- JWST Proposal Planning Workshop; Honolulu, HI, Jan 2020
- ALMA Community Day; Austin, TX Apr 2019
- JWST Proposal Planning Workshop; Austin, TX, Jun 2017
- ALMA Proposal and Data Reduction Workshop; Austin, TX Apr 2017

## FUNDRAISING

- Speaker - McDonald Observatory Board of Visitors Recruitment Meeting; Houston, TX, May 2019
- Speaker - McDonald Observatory Board of Visitors Meeting; Austin, TX, Feb 2019
- Speaker - McDonald Observatory Board of Visitors Recruitment Meeting; Dallas, TX, Nov 2018

## PUBLIC OUTREACH

- Activity Lead - Austin Camp Contemporary Art Education Fundraiser; Austin, TX, Oct 2019
- Activity Lead - Thinkery 21: It Came from the Future; Austin, TX, Oct 2019
- Speaker - KLRU: PBS Austin Next Night - Apollo 11 Documentary; Austin, TX, June 2019
- Organizer - Astronomy on Tap ATX; Austin, TX, 2014 - Present
- Volunteer - AstroFest - Week of Astronomy; Pasadena, CA, Jul 2018
- Volunteer - Jet Propulsion Lab (JPL) Open House; Pasadena, CA, Jun 2018
- Volunteer - UT Austin Introduce a Girl to Engineering Day; Austin, TX, Feb 2017

## NON-ACADEMIC

- Chief Operations Officer - UT Student Veterans Association; Austin, TX, 2019 - Present
- President - UT Student Veterans Association; Austin, TX, 2018-2019
- Representative - UT Military and Veteran Advisory Council; Austin, TX 2015 - Present
- Organizer - UT Women Veterans Group; Austin, TX 2013 - Present
- Public Relations Officer - UT Student Veterans Association; Austin, TX, 2013-2018
- Member - UT Association for Women in Astronomy Research and Education (AWARE); Austin, TX 2013 - Present
- Board Member - Austin Junior Forum; Austin, TX, 2017-2019
- Member - Austin Junior Forum; Austin, TX, 2013-2018