

# IVANNA ESCALA

Carnegie-Princeton Fellow  $\diamond$  Princeton University  
iescala@carnegiescience.edu  $\diamond$  iescala@princeton.edu  $\diamond$  iaescala.github.io

## EDUCATION

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**California Institute of Technology (Caltech)** Sep 2015 - Jun 2020  
*Ph.D., M.S. in Astrophysics*

**University of California, San Diego (UCSD)** Sep 2011 - Jun 2015  
*B.S. in Physics with Specialization in Astrophysics (Magna Cum Laude)*

## RESEARCH & WORK EXPERIENCE

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**Carnegie-Princeton Postdoctoral Fellow** Aug 2020 - Present  
*Carnegie Observatories & Princeton University*

**Postdoctoral Fellow, Caltech Astronomy** Jul 2020  
*with E. N. Kirby (Caltech)*

**Graduate Student Researcher, Caltech Astronomy** Sep 2015 - Jun 2020  
*with E. N. Kirby (Caltech), K. M. Gilbert (STScI),  
A. Wetzel (UC Davis), and P. F. Hopkins (Caltech)*

**Visiting Student Research Collaborator, Princeton Astrophysics** Feb 2019 - Jan 2020  
*with J. Greene (Princeton)*

**Graduate Teaching Assistant, Caltech Astronomy** Sep 2016 - Jun 2017

- Ay 123: Stellar Structure & Evolution (*with L. Hillenbrand*)
- Ay 21: Galaxies & Cosmology (*with G. Djorgovski*)
- Ay 126: Interstellar & Intergalactic Media (*with S. Kulkarni*)

**Undergraduate Student Researcher, UCSD Physics** Jun 2014 - Aug 2015  
*with A. J. Burgasser (UCSD) and D. Kereš (UCSD)*

**Academic Student Employee, UCSD Physics & Mathematics** Sep 2013 - Jun 2014

## HONORS & AWARDS

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**Carnegie-Princeton Fellowship** Feb 2020  
*Carnegie Observatories & Princeton University*

**France A. Córdova Tombrello Scholar** Jun 2019  
*California Institute of Technology*

California Alliance Research Exchange Fund <i>California Institute of Technology</i>	Mar 2019
Caltech Leadership Award <i>California Institute of Technology</i>	Jun 2017
Women Mentoring Women Candace Rypisi Outstanding Mentor <i>California Institute of Technology</i>	Jun 2017
National Science Foundation Graduate Research Fellowship	Apr 2017
Ford Foundation Predoctoral Fellowship	Apr 2017
National Science Foundation Graduate Research Fellowship, Honorable Mention	Apr 2016
Earle C. Anthony Fellowship <i>California Institute of Technology</i>	Sep 2015
Phi Beta Kappa New Initiate Scholarship <i>University of California, San Diego</i>	Jun 2015
Phi Beta Kappa <i>University of California, San Diego</i>	Jun 2015
Norm Taylor Award (Physics) <i>University of California, San Diego</i>	May 2015
Physical Sciences Dean's Undergraduate Award for Excellence <i>University of California, San Diego</i>	May 2015
California Alliance for Minority Participation (CAMP) Statewide Symposium Special Merit in Science & Engineering Award <i>Irvine, CA, USA</i>	Feb 2015
Physics Department Chair's Challenge Fund <i>University of California, San Diego</i>	Jan 2014

## COLLOQUIA, SEMINARS, & INVITED TALKS

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Rutgers Astrophysics Seminar (invited)	Oct 2022
Princeton Astrophysics Galread Seminar	2019, 2021, 2022
Testing Hierarchical Assembly with Roman 240 <sup>th</sup> Meeting of the American Astronomical Society (invited) <i>Pasadena, CA</i>	June 2022
Press Conference Briefing 240 <sup>th</sup> Meeting of the American Astronomical Society <i>Pasadena, CA</i>	June 2022
Carnegie Observatories Colloquium (invited)	June 2022
Joint UCSD-SDSU Astronomy Seminar	May 2022

UC Santa Cruz FLASH Seminar	2019, 2022
University of Chicago Near-Field Cosmology Talk	Apr 2022
Notre Dame Astrophysics Seminar	Apr 2022
University of Pennsylvania Astrophysics Seminar	Feb 2022
Center for Computational Astrophysics Lunch Talk	Feb 2022
JINA Galactic Chemical Evolution Workshop (invited) <i>Boston, MA, USA</i>	Mar 2020
University of Washington, Astronomy Lunch Talk	Nov 2019
The Ohio State University CCAPP Seminar (invited)	Nov 2019
Harvard Galaxies & Cosmology Seminar	Oct 2019
MIT Astronomy Lunch Talk	Oct 2019
UC Davis Cosmology Seminar	Sep 2019
UC Berkeley Astronomy Lunch Talk	Sep 2019
American Museum of Natural History Astrophysics Seminar	Sep 2019

## CONFERENCE PRESENTATIONS

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Linking the Galactic and the Extragalactic (contributed talk) <i>Wollongong, Australia</i>	Dec 2022
Spatially Resolved Spectroscopy with ELTs (contributed talk) <i>Oxford, UK (virtual)</i>	Sep 2021
2021 GALAH Science Meeting (contributed talk) <i>Sydney, Australia (virtual)</i>	Jun 2021
Linking the Galactic and the Extragalactic (contributed talk) <i>Wollongong, Australia (virtual)</i>	Dec 2020
STScI Symposium. The Local Group: Assembly and Evolution (contributed talk) <i>Baltimore, MD, USA (virtual)</i>	Sep 2020
235 <sup>th</sup> Meeting of the American Astronomical Society (dissertation talk) <i>Honolulu, HI, USA</i>	Jan 2020
Subaru 20th Anniversary Conference (contributed talk) <i>Big Island, HI, USA</i>	Nov 2019
2019 Keck Science Meeting (contributed talk) <i>Los Angeles, CA, USA</i>	Sep 2019
Small Galaxies, Cosmic Questions (contributed flash talk and poster) <i>Durham, UK</i>	Jul 2019

Stellar Archaeology & the First Stars, Kavli IPMU (contributed talk) <i>Tokyo, Japan</i>	Dec 2018
Stellar Abundances in Dwarf Galaxies 232 <sup>nd</sup> Meeting of the American Astronomical Society (contributed talk) <i>Denver, CO, USA</i>	Jun 2018
2017 GMT Community Science Meeting (contributed talk) <i>Tarrytown, NY, USA</i>	Sep 2017
The 3rd Swinburne-Caltech Workshop: Galaxies and their Halos (contributed talk) <i>Pasadena, CA, USA</i>	Sep 2017
Large Surveys of the Great Andromeda Galaxy (contributed talk) <i>Leiden, the Netherlands</i>	Jul 2017

## **OBSERVING EXPERIENCE**

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PI Magellan/IMACS <i>10 nights awarded &amp; experience observing</i>	Semesters (2020–2022)B
co-I Keck/DEIMOS (significant contributor) <i>2 nights awarded</i> <i>&gt;20 nights total experience observing</i>	Semester 2020B
co-I Subaru/HSC (significant contributor) <i>Approx. 6 hr awarded (queue observing)</i>	Semester 2020B

## **PROFESSIONAL SERVICE**

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NSF NOIRLab Telescope Allocation Committee Member	Semester 2022A – Present
Monthly Notices of the Royal Astronomical Society – Referee	2021 – Present
AAS Journals – Referee	2022 – Present
AAS Representative, Congressional Day Visit	Mar 2019

## **LEADERSHIP & MENTORSHIP EXPERIENCE**

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Carnegie Astrophysics Summer Student Internship Program – Mentor / Volunteer	2022, 2021
UC Santa Cruz Science Intership Program (SIP) Mentor	2022
Carnegie Postdoc Co-Representative	Nov 2021 – Jul 2022
Caltech Graduate Student Council – Associate Director	2018–2019
Caltech Women in Physics, Math, and Astronomy – Founding President	2016–2018
Caltech Astronomy Graduate Outreach Coordinator	2017–2018
Caltech Graduate Student Council – Secretary	2017–2018

Caltech Women Mentoring Women – Mentor	2018, 2017, 2016
Caltech Summer Research Connection Program – Mentor	2017, 2016
UCSD Undergraduate Women in Physics – Board Member	2015, 2014

## SELECTED OUTREACH ACTIVITIES

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Science Internship Program 2022 Plenary Session (speaker) <i>Santa Cruz, CA, USA (virtual)</i>	Aug 2022
Pasadena Senior Center Cosmic Cocktail Hour (speaker) <i>Pasadena, CA, USA</i>	Feb 2022
Astronomy on Tap, Trenton (speaker) <i>Trenton, NJ, USA</i>	Feb 2019
Kavli IPMU Meet the Scientists Outreach Event (speaker) <i>Tokyo, Japan</i>	Dec 2018
Caltech Astronomy Stargazing & Lecture Series (speaker) <i>Pasadena, CA, USA</i>	Jun 2017
Palomar Observatory Greenway Talk Series (speaker) <i>Palomar Mountain, CA, USA</i>	Jan 2017
Southern California Physics Graduate Admissions Bootcamp (guest speaker) <i>La Jolla, CA, USA</i>	Aug 2017, Aug 2016
Astronomy on Tap, Los Angeles (speaker) <i>Pasadena, CA, USA</i>	Dec 2016

## ADDITIONAL REFERENCES

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John Mulchaey <i>Director and Chair of the Carnegie Observatories</i>	mulchaey@carnegiescience.edu
Ana Bonaca <i>Research Staff at the Carnegie Observatories</i>	abonaca@carnegiescience.edu
Josh Simon <i>Research Staff at the Carnegie Observatories</i>	jsimon@carnegiescience.edu
Alexander P. Ji <i>Assistant Professor at the University of Chicago</i>	alexji@uchicago.edu
Raja Guhathakurta <i>Professor and Department Chair at UC Santa Cruz</i>	raja@ucolick.org
Robyn Sanderson <i>Assistant Professor at the University of Pennsylvania</i>	robynes@sas.upenn.edu
Andrew Wetzel <i>Associate Professor at UC Davis</i>	awetzel@ucdavis.edu

## PUBLICATIONS

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**ADS Publications List:** <https://ui.adsabs.harvard.edu/public-libraries/z50yPfEeQ-GwMGmZmzk4BQ>

### First Author

1. “Resolved SPLASH Chemodynamics in Andromeda’s PHAT Stellar Halo and Disk: On the Nature of the Inner Halo Along the Major Axis”  
**Escala, I.**, Quirk, A. C. N., Guhathakurta, P., Gilbert, K. M., Wojno, J. L., Cullinane, L., Williams, B. F., Dalcanton, J., 2022, AJ, accepted. arXiv: 2209.07962
2. “Kinematics and Metallicity of Red Giant Branch Stars in the Northeast Shelf of M31”  
**Escala, I.**, Gilbert, K. M., Fardal, M., Guhathakurta, P., Sanderson, R. E., Kalirai, J. S., Mobasher, B., 2022, AJ, 164, 19.
3. “Elemental Abundances in M31: Gradients in the Giant Stellar Stream”  
**Escala, I.**, Gilbert, K. M., Wojno, J., Kirby, E. N., Guhathakurta, P., 2021, AJ, 162, 45
4. “Elemental Abundances in M31: Properties of the Inner Stellar Halo”  
**Escala, I.**, Kirby, E. N., Gilbert, K. M., Wojno, J., Cunningham, E. C., Guhathakurta, P., 2020, ApJ, 902, 51
5. “Elemental Abundances in M31: A Comparative Analysis of Alpha and Iron Abundances in the Outer Disk, Giant Stellar Stream, and Inner Halo”  
**Escala, I.**, Gilbert, K. M., Kirby, E. N., Wojno, J., Cunningham, E. C., Guhathakurta, P., 2020, ApJ, 889, 177
6. “Elemental Abundances in M31: Alpha and Iron Element Abundances from Low-Resolution Resolved Stellar Spectroscopy in the Stellar Halo”  
**Escala, I.**, Kirby, E. N., Gilbert, K. M., Cunningham, E. C., Wojno, J., 2019, ApJ, 878, 42
7. “Modeling chemical abundance distributions for dwarf galaxies in the Local Group: the impact of turbulent metal diffusion”  
**Escala, I.**, Wetzell, A., Kirby, E. N., Hopkins, P. F., Ma, X., Wheeler, C., Kereš, D., Faucher-Giguère, C.-A., Quataert, E., 2018, MNRAS, 474, 2194

### Co-Author

1. “Elemental Abundances in M31: Individual and Coadded Spectroscopic [Fe/H] and  $[\alpha/\text{Fe}]$  throughout the M31 Halo with SPLASH”  
Wojno, J. L., Gilbert, K. M., Kirby, E. N., **Escala, I.**, Guhathakurta, P., Beaton, R. L., Kalirai, J., Chiba, M., Majewski, S. R., ApJ, 2022, submitted. arXiv: 2211.15288
2. “Spiral Arms are Metal Freeways: Azimuthal Gas-Phase Metallicity Variations in Simulated Cosmological Zoom-in Flocculent Disks”  
Orr, M. E., Burkhart, B., Wetzell, A., Hopkins, P. F., **Escala, I. A.**, Strom, A. L., Goldsmith, P. F., Pineda, J. L., Hayward, C. C., Loebman, S. R., MNRAS, 2022, submitted. arXiv: 2209.14159
3. “Reading the CARDS: the Imprint of Accretion History in the Chemical Abundances of the Milky Way’s Stellar Halo”  
Cunningham, E. C., Sanderson, R. E., Johnston, K. V., Panithanpaisal, N., Ness, M. K., Wetzell, A., Loebman, S. R., **Escala, I.**, Horta, D., Faucher-Giguère, C.-A., 2022, ApJ, 934, 172

4. “Gas infall and radial transport in cosmological simulations of Milky Way-mass disks”  
Trapp, C., Kereš, D., Chan, T. K., **Escala, I.**, Hummels, C., Hopkins P. F., Faucher-Giguère, C.-A., Murray, N., Quataert, E., Wetzel, A., 2021, MNRAS, accepted. arXiv: 2105.11472
5. “Elemental Abundances in M31: Iron and Alpha Element Abundances in M31’s Outer Halo”  
Gilbert, K. M., Wojno, J., Kirby, E. N., **Escala, I.**, Beaton, R., Guhathakurta, P., Majewski, S., 2020, ApJ, 160, 41
6. “Elemental Abundances in M31: [Fe/H] and [alpha/Fe] in M31 Dwarf Galaxies Using Coadded Spectra”  
Wojno, J., Gilbert, K. M., Kirby, E. N., **Escala, I.**, Beaton, R., Tollerud, E., Majewski, S., Guhathakurta, P., 2020, ApJ, 895, 78
7. “Elemental Abundances in M31: The Kinematics and Chemical Evolution of Dwarf Spheroidal Satellite Galaxies”  
Kirby, E. N., Gilbert, K. M., **Escala, I.**, Wojno, J., Guhathakurta, P., 2020, ApJ, 159, 46
8. “Elemental Abundances in M31: First Alpha and Iron Abundance Measurements in M31’s Giant Stellar Stream”  
Gilbert, K. M., Kirby, E. N., **Escala, I.**, Wojno, J., Kalirai, J. S., Guhathakurta, P., 2019, ApJ, 883, 128
9. “Reconciling Observed and Simulated Stellar Halo Masses”  
Sanderson, R. E., Garrison-Kimmel, S., Wetzel, A., Chan, T. K., Hopkins, P. F., Kereš, D., **Escala, I.**, Faucher-Giguère, C.-A., Ma, X., 2018, ApJ, 869, 12
10. “FIRE-2 simulations: physics versus numerics in galaxy formation”  
Hopkins, P. F., Wetzel, A., Kereš, D., Faucher-Giguère, C.-A., Quataert, E., Boylan-Kolchin, M., Murray, N., Hayward, C. C., Garrison-Kimmel, S., Hummels, C., Feldmann, R., Torrey, P., Ma, X., Anglés-Alcázar, D., Su, K. Y., Orr, M., Schmitz, D., **Escala, I.**, Sanderson, R., Grudić, M., Hafen, Z., Kim, J. H., Fitts, A., Bullock, J. S., Wheeler, C., Chan, T. K., Elbert, O. D., Narayanan, D., 2018, MNRAS, 480, 800
11. “The First Brown Dwarf/Planetary-mass Object in the 32 Orionis Group”  
Burgasser, A. J., Lopez, M. A., Mamajek, E. E., Gagné, J., Faherty, J. K., Tallis, M., Choban, C., Tamiya, T., **Escala, I.**, Aganze, C., 2016, ApJ, 820, 32
12. “Auroral Radio Emission from Late L and T Dwarfs: A New Constraint on Dynamo Theory in the Substellar Regime”  
Kao, M., Hallinan, G., Pineda, J. S., **Escala, I.**, Burgasser, A. J., Bourke, S., Stevenson, D., 2016, ApJ, 818, 2
13. “Characterization of the Very-low-mass Secondary in the GJ 660.1AB System”  
Aganze, C., Burgasser, A. J., Faherty, J. K., Choban, C., **Escala, I.**, Lopez, M. A., Jin, Y., Tamiya, T., Tallis, M., Rockward, W., 2016, AJ, 151, 46