Alexander de la Vega

Contact Information

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Research Interests

Galaxy formation and evolution, star formation and dust within galaxies, testing assumptions in spectral energy distribution fitting, Bayesian statistics

Academic Positions Held

University of California, Riverside, CA — 2022 – Present
Postdoctoral Scholar and Astronomy Outreach Coordinator

Education

The Johns Hopkins University, Baltimore, Maryland, USA — 2016 – 2022
Ph.D., Astrophysics
Advisors: Susan A. Kassin (main) and Timothy M. Heckman

The Johns Hopkins University, Baltimore, Maryland, USA — 2012 – 2016
B.S., Physics & Applied Mathematics and Statistics *cum laude*
Minor in Mathematics

Member

American Astronomical Society (AAS)
AAS Astronomy Ambassadors Program

Publications
ADS record

21. **A. de la Vega**, S. Kassin, C. Pacifici, et al.
Physically motivated SED fitting of radial profiles of galaxies
2023, in preparation
20. Y. Guo, S. Jogee, S. L. Finkelstein, et al. (incl. **A. de la Vega**)
First Look at $z > 1$ Bars in the Rest-frame
Near-infrared with *JWST* Early CEERS Imaging
2023, ApJL, 945, 10
19. L. Bisigello, G. Gandolfi, A. Grazian, et al. (incl. **A. de la Vega**)
Delving deep: a population of extremely dusty dwarfs observed by *JWST*
2023, arXiv:2302.12270, submitted to A&A
18. R. T. Coogan, E. Daddi, A. Le Bail, et al. (incl. **A. de la Vega**)
A $z = 1.85$ galaxy group in CEERS: evolved, dustless, massive
Intra-Halo Light and a Brightest Group Galaxy in the making
2023, arXiv:2302.08960, submitted to A&A
17. C. Pacifici, K. G. Iyer, B. Mobasher, et al. (incl. **A. de la Vega**)
The Art of Measuring Physical Parameters in Galaxies:
A Critical Assessment of Spectral Energy Distribution Fitting Techniques
2023, ApJ 944, 141
16. J. A. Zavala, V. Buat, C. M. Casey, et al. (incl. **A. de la Vega**)
Dusty Starbursts Masquerading as Ultra-high
Redshift Galaxies in *JWST* CEERS Observations
2023, ApJL, 943, 9
15. S. L. Finkelstein, M. B. Bagley, P. Arrabal Haro, et al. (incl. **A. de la Vega**)
A Long Time Ago in a Galaxy Far, Far Away:
A Candidate $z \sim 12$ Galaxy in Early *JWST* CEERS Imaging
2022, ApJL, 940, 55

14. M. B. Bagley, S. L. Finkelstein, A. M. Koekemoer, et al. (incl. **A. de la Vega**)
CEERS Epoch 1 NIRCam Imaging: Reduction Methods
and Simulations Enabling Early *JWST* Science Results
2022, arXiv:2211.11024, accepted in ApJ

13. E. A. Shah, J. S. Kartaltepe, C. T. Magagnoli, et al. (incl. **A. de la Vega**)
Investigating the Effect of Galaxy Interactions on Star Formation at $0.5 < z < 3.0$
2022, ApJ, 940, 4

12. J. S. Kartaltepe, C. Rose, B. N. Vanderhoff, et al. (incl. **A. de la Vega**)
CEERS Key Paper III: The Diversity of Galaxy Structure
and Morphology at $z = 3 - 9$ with *JWST*
2022, arXiv:2210.14713, accepted in ApJL

11. W. Wang, S. A. Kassin, S. M. Faber, et al. (incl. **A. de la Vega**)
The Baltimore Oriole's Nest: Cool Winds from the Inner
and Outer Parts of a Star-forming Galaxy at $z = 1.3$
2022, ApJ, 930, 146

10. E. Lambrides, M. Chiaberge, T. Heckman, et al. (incl. **A. de la Vega**)
Lower-Luminosity Obscured AGN Host Galaxies are
Not Predominantly in Major-Merging Systems at Cosmic Noon
2021, ApJ, 919, 129

9. E. A. Shah, J. S. Kartaltepe, C. T. Magagnoli, et al. (incl. **A. de la Vega**)
Investigating the Effect of Galaxy Interactions on
the Enhancement of Active Galactic Nuclei at $0.5 < z < 3.0$
2020, ApJ, 904, 107

8. L. Bianchi, **A. de la Vega**, B. Shiao & B. J. Souter
AREAcat: A Tool to Compute Area Coverage of GALEX UV
GUVcat and BCScat, SDSS, PanSTARRS, and Gaia Source Catalogs in Chosen Sky Regions
2019, ApJS, 241, 14

7. R. Simons, S. A. Kassin, G. Snyder, et al. (incl. **A. de la Vega**)
Distinguishing Mergers and Disks in High-redshift Observations of Galaxy Kinematics
2019, ApJ, 874, 59

6. W. Wang, S. A. Kassin, C. Pacifici, et al. (incl. **A. de la Vega**)
Galaxy Inclination and the IRX-β Relation:
Effects on UV Star Formation Rate Measurements at Intermediate to High Redshifts
2018, ApJ, 869, 161

5. **A. de la Vega** & L. Bianchi
Searching for Short-timescale Variability in the Ultraviolet
with the GALEX gPhoton Archive. I. Artifacts and Spurious Periodicities
2018, ApJS, 238, 25

4. Astropy Collaboration (incl. **A. de la Vega**)
The Astropy Project: Building an Open-science Project and Status of the v2.0 Core Package
2018, AJ, 156, 123

3. L. Bianchi, **A. de la Vega**, & B. Shiao
New UV-source catalogs, UV spectral database,
UV variables and science tools from the GALEX surveys
2018, Ap&SS, 363, 56

2. R. Simons, S. A. Kassin, B. J. Weiner, et al. (incl. **A. de la Vega**)
$z \sim 2$: An Epoch of Disk Assembly
2017, ApJ, 843, 46

1. **A. de la Vega**, A. C. Quillen, J. L. Carlin, S. Chakrabarti & E. D'Onghia
Phase Wrapping of Epicyclic Perturbations in the Wobbly Galaxy
2015, MNRAS, 454, 933

Teaching

AS 171.107 Classical Mechanics – Head Teaching Assistant — Fall 2020

- Coordinated with two professors to teach 120 students via Zoom
- Organized lecture and grading schedules of 7 other teaching assistants
- Helped students solve group problems during lecture in an active learning setting
- Conducted a 50 minute recitation each week with 20 students
- Graded homework and exams
- Held weekly office hours

AS 171.613 Radiative Astrophysics — Fall 2019

- Graded homework and led weekly office hours

AS 171.627 Astrophysical Dynamics — Fall 2019

- Graded homework and led weekly office hours

AS 171.107 Classical Mechanics — Fall 2016, Fall 2018, Fall 2019

- Helped students solve group problems during lecture in an active learning setting
- Conducted a 50 minute recitation each week with 20 students
- Ran a three-hour lab every week covering material in the course
- Graded homework, exams, and lab reports
- Held weekly office hours

Outreach

Astronomy Outreach Coordinator — Fall 2022 – Present

- Lead astronomy outreach program at UC Riverside
- Outreach program reaches out to $> 1,000$ people each academic quarter and provides outreach in English and Spanish
- Conduct telescope nights at UC Riverside and other venues in Riverside and San Bernardino Counties
- Visit local schools to give astronomy presentations
- Organize a public astronomy talk series, *Cosmic Thursdays*
- Give public talks at UC Riverside and for the Riverside Astronomical Society
- Design and give astronomy presentations as part of the Camp Highlander youth program

Maryland Space Grant Consortium Observatory Fellow — Fall 2019 – Summer 2021

- Conducted weekly, public open houses of the Maryland Space Grant Observatory
- Trained users of the Maryland Space Grant Telescope
- Developed procedures for various observing modes of the telescope camera

Youth for Astronomy & Engineering, Space Telescope Science Institute — Fall 2016 – Fall 2019

- Jointly organized outreach events with 100+ attendants each
- Set up and conducted shows for public within a portable planetarium
- Gave physics demonstrations

Annual Physics Fair, The Johns Hopkins University — Spring 2017, Spring 2018, Spring 2019

- Gave physics demonstrations to the public
- Operated the Maryland Space Grant Observatory Telescope for sunspot viewing

- Set up and conducted planetarium shows

Mentorship

Ethan M. Ward, post-baccalaureate researcher at UC Riverside — Fall 2022 – Present
- Project: *Standardizing Catalogs using JWST and HST Legacy Data*

Catherine Franklin, high school student at Oldfields School — Fall 2021
- Project: *The Impact of Bars on Star-formation at Intermediate Redshift*

Honors & Awards

Maryland Space Grant Consortium Observatory Fellow — Fall 2019 – Summer 2021
Chateaubriand STEM Fellow — 2018

Dean's List, Spring 2013 – 2016, Fall 2014 and 2015 — 2013 – 2016
Dean's Undergraduate Research Award — Spring 2014
Provost's Undergraduate Research Award — Spring 2014
George A. Petrossian, M.D. Scholarship — 2013, 2014 and 2015
Klara Shorey Memorial Scholarship — 2015

Presentations

Dust attenuation assumptions and spatially resolved quenching in CANDELS
The Art of Measuring Galaxy Physical Properties, Milan, Italy — 18 – 22 November 2019

Dust Assumptions in Resolved SED Fitting
CANDELS team meeting, Amherst, MA — 22 – 24 October 2018

Galaxies by the pixel: Stellar Mass and SFR Maps of CANDELS Galaxies
CANDELS SED Fitting Workshop, Riverside, CA — 10 – 12 April 2018

Dust and Stellar Population Maps of a CANDELS Galaxy
CANDELS team meeting, Baltimore, MD — 22 – 26 August 2016

Phase Wrapping of Epicyclic Perturbations in the Wobbly Galaxy
University of Rochester REU, Rochester, NY — 31 July 2015

Posters

A. de la Vega, S. A. Kassin, C. Pacifici et al.
Pixel-by-pixel Analysis of Hubble Images of CANDELS Galaxies over $0.2 < z < 2.5$
Science with the Hubble and James Webb Telescopes, Venice, Italy — 20 – 24 March 2017

A. de la Vega, W. S. Cunningham, Yu Xu & Y. Frumer
Tales of Dragons: A Reconstruction of the Ming Dynasty Two-Stage Rocket
Provost's Undergraduate Research Awards Poster Session, Baltimore, MD — 28 April 2016

A. de la Vega, A. C. Quillen, J. L. Carlin, S. Chakrabarti & E. D'Onghia
Phase Wrapping of Epicyclic Perturbations in the Wobbly Galaxy
CUR REU Symposium, Arlington, VA, USA — 25 – 26 October 2015

Accepted Proposals

CO Kinematics at Cosmic Noon: — 2021, *ALMA*, Cycle 8
Timing the Redistribution of Metals Around Galaxies
(23.1 hours, Proposal ID #2021.1.01188.S, PI: Simons)

A Pathfinder for JWST *Spectroscopy:* — 2021, *JWST*, Cycle 1
Deep High Spectral Resolution Maps of Galaxies over $1 < z < 6$
(74.3 hours, Proposal ID #2123, PI: Kassin)

Does molecular gas follow the motion of ionized gas — 2019, *ALMA*, Cycle 7

inside typical high-redshift star-forming galaxies?
(14.7 hours, Proposal ID #2019.1.01398.S, PI: Wang)

Timing thick disk formation: 2017, *HST*, Cycle 25
an indirect census of stellar kinematics to $z \sim 2$ from legacy Hubble imaging
(archival, Proposal ID #15052, PI: Simons)

Observing Experience

ARC 3.5m Telescope, Apache Point Observatory, NM, USA 19 - 21 November 2016
- Detected exoplanet transits and observed various Messier objects

Service

Led meetings between STScI Colloquium speaker and JHU graduate students Fall 2016 – Fall 2020

Skills

Programming: Python, Unix Shell, R, Java, JavaScript, VBA, PHP
Applications/Software: LaTeX, IRAF, ds9, MATLAB
Design: Adobe Premier, Drupal, HTML 5, CSS