Jed McKinney

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EDUCATION

University of Massachusetts, Amherst, MA **Sep 2017 – Present**

- Graduate Student, Astronomy. GPA 3.9
- Advisors: Alexandra Pope, Anne Jaskot
- Thesis : The Multiphase Interstellar Medium of Distant Galaxies
- Expected Graduation Date: August, 2022

Tufts University, Medford, MA **Sep 2013 – May 2017**

- B.S., Astrophysics, *magna cum laude*. Minor, Mathematics. GPA 3.69
- Advisor: Anna Sajina
- Thesis : Evidence of SED Uniformity in 1.1 mm Selected Dusty, Star-Forming Galaxies

RESEARCH

University of Massachusetts, Amherst, MA. Advisor: Alexandra Pope **Sep 2018 – Present**

- Used *Spizter IRS*, *Herschel* and *HST* with ALMA observations to constrain gas and dust properties in the ISM of high-redshift, dusty, star-forming galaxies.

Center for Computational Astrophysics, NYC, NY. Advisor: Chris Hayward **Jun 2019 – Present**

- Analyzed radiative transfer output of galaxy simulations to assess whether or not active galactic nuclei can contribute significantly to host-galaxy IR dust emission.

University of Massachusetts, Amherst, MA. Advisor: Anne Jaskot **Sep 2017 – Feb 2019**

- Investigated the neutral gas content and geometry of dwarf galaxies using *HST COS* and VLA spectra.

Tufts University, Medford, MA. Advisor: Anna Sajina **Jan 2015 – May 2017**

- Used *Spitzer* and millimeter-wave photometry to constrain the evolving IR luminosity function.

PUBLICATIONS

McKinney, J., Pope, A., Arumus, L., Chary, R., Dickinson, M., Kirkpatrick, A., Díaz-Santos, T., *Measuring the Heating and Cooling of the Interstellar Medium at High Redshift: PAH and [C II] Observations of the same Star-Forming Galaxies at z=2*, 2020, subm.

- Reduced, imaged, analyzed ALMA Band 9 data, matched observations with *HST* catalogs

McKinney, J., Hayward, C., Pope, A., Rosenthal, L., Martínez-Galarza, R., Sajina, A., Smith, H., *Quasars can Power Cold Dust Emission in the Far-Infrared*, 2020, in prep.

McKinney, J., Jaskot, A. E. , Oey, M. S., Yun, M. S., Dowd, T., Lowenthal, J., *Neutral Gas and Lyα Escape in Extreme Green Pea Galaxies*, 2019, ApJ, 874, 52. arXiv:1902.08204

- Reduced, imaged, analyzed VLA data, analyzed *HST COS* spectra

Jaskot, A. E. et al., **McKinney, J.**, *New Insights on Lyα and Lyman Continuum Radiative Transfer in the Greenest Peas*, 2019, ApJ, 885, 96. arXiv:1908.09763

- Measured properties of low-ionization metal absorption lines

Bonato, M. et al., **McKinney, J.** et al., *Exploring the Evolution of Star Formation and Dwarf Galaxy Properties with JWST/MIRI Serendipitous Surveys*, 2017, ApJ, 836, 171.

- Developed analysis software, collected and analyzed millimeter-selected galaxies

SOFTWARE

SurveySim: an MCMC-based Code to Constrain Luminosity Function Evolution.

- Role: Developer, system testing, wrote Users' Manual

PRESENTATIONS

Tracing the Heating and Cooling of the Interstellar Medium in Galaxies at $z \sim 2$

- Contributed Talk, AAS 235, January 6, Honolulu, Hawaii

The Multiphase ISM at Cosmic Noon: [C II] and PAH Emission in the Same Distant Galaxies

- Flash talk and poster, IAU Symposium 352, June 2019, Viano do Castelo, Portugal

Neutral Gas Properties and Lyα Escape in Highly Ionized Green Peas
Contributed Talk, Escape of Lyman Radiation from Galactic Labyrinths, Sep. 2018, Kolymbari, Crete

Neutral Gas and Lyα Emission in Green Peas Galaxies
Flash Talk, The Universe by the Light of CANDELS: Past and Future, Oct. 2018, Amherst, MA.

PROPOSAL EXPERIENCE

PI *Molecular Gas in GSIRS20 : A Detailed Study of the Multiphase ISM at Cosmic Noon*, **The Very Large Array**, 2019, 9 hours awarded, 9 hours received.

TRAINING

Introduction to Numerical Simulations, Flatiron Center for Astrophysics, New York City, NY **Aug 2019**
Received personal training in manipulating and interpreting simulation data.

Data Reduction Visit to the North American ALMA Science Center, Charlotsville, VA **Aug 2018**
Received training in ALMA and VLA data reduction.

GRANTS AND AWARDS

IPAC Visiting Graduate Student Fellowship, 6 month research fellowship, 2020

Massachusetts Space Grant Consortium Summer Fellowship, 2019, $5k

Mary Dailey Irvine Travel Fund, 2019, $1200

AAS ITG 2019-1 Travel Grant, 2019, $1300

IAU S352 Travel Grant, 2019, $600

The Class of 1911 Scholarship Prize, 2017, $2.1k

PUBLIC OUTREACH

Summer Pre-College, Modern Astronomy, Amherst, MA **2018 – Present**
Lead and designed physics and astronomy lectures for advanced high school students interested in college-level coursework.

Astronomy 191A First Year Seminar, Amherst, MA **2018 – Present**
Mentored first year students considering an astronomy major.

Introduction to Coding Workshop, Amherst, MA **2018 – Present**
Run interactive workshops on the basics of computer programming for freshman and sophomores.

SKILLS

Programming

- Languages: Python, C++
- Data Reduction: CASA
- Version Control: Git

Data Analysis

- Bayesian statistics, MCMC, data visualization