Jed McKinney

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EDUCATION

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

- PhD Candidate, Astronomy
- Advisors: Alexandra Pope (thesis), Anne Jaskot (research, 2017-2018)
- Thesis : How do galaxies form stars over cosmic time?
- Expected Graduation Date: Aug., 2022

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

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

RESEARCH EXPERIENCE

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

- Used *Spizter IRS*, *Herschel* and *Hubble Space Telescope (HST)* in conjunction with the Atacama Large Millimeter/submillimeter (ALMA) Array to constrain gas properties in high redshift dusty galaxies.

Infrared Processing and Analysis Center, Caltech, Advisor: Lee Armus **Feb 2020 – Aug 2020**

- Combined mid- and far-infrared diagnostics of the interstellar medium to test the heating and cooling of gas in $z = 0$ galaxies.

Flatiron Center for Astrophysics, NYC, in collaboration with Chris Hayward **Aug 2019- Present**

- Measured the AGN heating of host-galaxy dust on $\sim$kpc scales in massive, merging galaxies using numerical simulations.

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

- Investigated the neutral gas content and geometry of dwarf galaxies using spectra from *Hubble Space Telescope* COS and the Very Large Array.

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

- Explored the synergy between *Spitzer* MIPS and millimeter-wave photometry for constraining the evolving infrared luminosity function.

REFEREED PUBLICATIONS

McKinney, J., Arumus, L., Pope, A., Díaz-Santos, T., Charmandaris, V., Inami, H., Song, Y., Evans, A., *Regulating Star Formation in Nearby Dusty Galaxies: Low Photoelectric Efficiencies in the Most Compact Systems*, 2021, ApJ, 908, 238. arXiv:2101.01182

McKinney, J., Pope, A., Arumus, L., Chary, R., Díaz-Santos, T., Dickinson, M., Kirkpatrick, A., *Measuring the Heating and Cooling of the Interstellar Medium at High Redshift: PAH and [C II] Observations of the Same Star-forming Galaxies at $z \sim 2$*, 2020, ApJ, 892, 119. arXiv:2002.08371

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

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

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.

SOFTWARE

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

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

PRESENTATIONS

Heating and Cooling in the Interstellar Medium of Dusty, Star-Forming Galaxies
Invited Talk, Tufts University Astronomy Seminar, February 2021

Heating and Cooling in the Interstellar Medium of Dusty, Star-Forming Galaxies
Contributed Talk, IR Science Interest Group, February 2021

The Interstellar Medium of Dusty, Star-Forming Galaxies: Low heating efficiencies in compact systems
Contributed Talk, AAS 237, January 2021

Tracing the Heating and Cooling of the Interstellar Medium in Galaxies at $z \sim 2$
Contributed Talk, AAS 235, January 2020, 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.

OBSERVING EXPERIENCE

PI *Linking Heating and Star-Formation Efficiencies in the ISM of High-z Galaxies*, **The Very Large Array**, 2021, 25 hours

Comparing optical and infrared tracers of AGN, **KECK/NIRES**, 2020, 16 hours

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

TRAINING

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

GRANTS & 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 – 2019**
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**
Mentored first year students considering an astronomy major.

Introduction to Coding Workshop, Amherst, MA **2018**
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