

Sean T. Linden

CONTACT INFORMATION

109 Stribling Ave., Apartment A
Charlottesville VA, 22903, United States

708-287-1748
stl7ey@virginia.edu

EDUCATION

Ph.D., Astronomy, University of Virginia *Aug 2016-May 2020*

Thesis: *Comparing the Obscured and Un-Obscured Star Formation Properties of Luminous Infrared Galaxies to Normal Star-Forming Galaxies in the Local Universe*

Primary Advisor: Aaron Evans

Thesis Committee: Eric Murphy, Nitya Kallivayalil

M.S., Astronomy, University of Virginia *Aug 2014-May 2016*

Grade Point Average of 3.947/4.0

B.S., Astronomy, Case Western Reserve University *Aug 2010-May 2014*

Magna Cum Laude

Minors in Mathematics and Physics

Grade Point Average of 3.788/4.0

RESEARCH INTERESTS

I am interested in high-resolution studies of star clusters and star-forming regions, their corresponding molecular gas structures, and the process of feedback and regulation of the ISM in galaxies. Particularly, I utilize multi-wavelength datasets of both the un-obscured (radio/submm) and obscured emission (UV/optical) from star-forming regions in Luminous Infrared Galaxies (LIRGs) in the local Universe. A primary component of my analysis is to compare the properties of LIRGs to normal star-forming galaxies in the local Universe, in order to understand the nature of LIRGs and their importance to the picture of galactic evolution throughout cosmic time. I am also interested in the correlation between LIRG properties, merger stages, and starburst activity. I am conducting this work as a member of the Great Observatories All Sky LIRG Survey (GOALS), the Star Formation in Radio Survey (SFRS), and the Legacy Extragalactic UV Survey (LEGUS).

HONORS & AWARDS

Raven Society Member, University of Virginia: *Mar 2018*
Inducted into the most prestigious honor's society for graduate students at the University of Virginia

Emma Williams Prize, University of Virginia: *Mar 2018*
Awarded \$500 for outstanding achievement in research as a 4th year graduate student

RadioNet Research Travel Grant, EU Horizon 2020 Research and Innovation Program: *Jul 2017*
A Multi-Band VLA Comparison of Normal and Extreme Star-Forming Galaxies in the Local Universe

Grote Reber Doctoral Fellowship, National Radio Astronomical Observatory *Aug 2017-Aug2019*
Awarded \$29000 annually for the project: Star Formation Properties of Luminous Infrared Galaxies and Normal Star-Forming Galaxies in the Local Universe

Graduate STEM Research Fellowship, Virginia Space Grant Consortium *May 2015-May2017*
Awarded \$12000 for the project (\$6000 per year for two years): The Nature of Obscured and Un-Obscured Star Formation in Luminous Galaxy Mergers

The Formation and Destruction of Star Clusters in Luminous Infrared Galaxies *Mar 2016*
Huskey Research Exhibition Talk, University of Virginia, 3rd Place Award

Jason J. Nassau Prize, Case Western Reserve University *May 2014*
Awarded by the Cleveland Astronomical Society to the outstanding senior student in the CWRU Department of Astronomy

Sigma Nu Delta Alpha Alumni Chapter Award, Case Western Reserve University *May 2014*
Awarded for outstanding service to the active chapter by a senior

Dean's Scholarship, Case Western Reserve University *Aug 2010-May 2014*
Awarded annually for \$30,000 of scholarship funding towards tuition, room, and board

COMPUTING EXPERIENCE

Operating systems: Mac, Linux, Windows

Programming Proficiencies: High proficiency in SuperMongo, Python, CASA, ds9, LaTeX, Fortran, MATLAB, IRAF, SExtractor, PSFeX, GALFIT, AstroDrizzle, IDL, Microsoft Office, GALAXEV stellar evolution code, high-performance cluster environments.

Workshops: NRAO 15th Synthesis Imaging Workshop, June 1st-8th, 2016

RESEARCH EXPERIENCE

Research Assistant, University of Virginia *Aug 2014–present*
Advisor: Aaron Evans
Studying un-obscured star formation at high resolution in a large sample of merging galaxies. Using HST GO15472, GO10596, and GO11196 to determine the ages and masses of optically visible star clusters in a sample of nearly 40 U/LIRGs we can determine the cluster mass function and destruction rates. These results will be compared to a matched data set in the Legacy Extragalactic UV Survey with HST (LEGUS), for which I am an active member.

Research Assistant, University of Virginia *Aug 2014–present*
Advisor: Aaron Evans
Studying obscured star formation at high resolution in a large sample of LIRGs using VLA 16A-204, 19A-438 to determine the star formation rate surface densities and relative contributions of thermal and non-thermal emission as a function of both region in the galaxy and distance from active regions of SF activity. A study examining the radio and near-IR properties of luminous extranuclear star-forming regions in LIRGs has recently been published.

Research Assistant, National Radio Astronomical Observatory *May 2016–present*
Advisor: Eric Murphy
We performed analysis on set of multi-band Jansky Very Large Array (VLA) images of 112 extragalactic nuclei and star-forming regions in 50 nearby galaxies taken as part of the Star Formation in Radio Survey (SFRS). The SFRS contains galaxies taken as part of the Spitzer/SINGS and Herschel/KINGFISH legacy programs, respectively. Our initial investigation includes a comparison of 33GHz source morphologies with H α imaging from SINGS. In our follow up study, I perform a full 3 – 33 GHz SED decomposition and photometric analysis for all 50 galaxies in the sample.

Summer Research Assistant, University of Virginia *May 2015–present*

Advisor: Nitya Kalliyaylil

I have been involved in studying the proper motions of the globular cluster Pyxis and the dwarf galaxy Segue 1 to determine their origins and fate, as well as to constrain the overall galactic gravitational potential of the MW. These efforts have been some the first ever study to use HST + ground-based Gemini AO (GSAOI) to determine a proper motion of distant halo objects. I also worked on the internal kinematics of the SMC and Magellanic Bridge with HST GO13476, to determine whether the LMC and SMC are in a binary orbit, whether they are on their first in-fall into the Milky Way, and what the rotation curve of the SMC looks like.

Undergraduate Research Assistant, Case Western Reserve University

May 2013–May 2014

Advisor: Chris Mihos

I studied the effect of interactions and mergers on spiral galaxies using high-resolution N-Body simulations. We examined the disk asymmetry and star formation rates in M101 by modeling potential merger scenarios with NGC5477 and NGC5474. I took data at Kitt Peak using the Burrell Schmidt Telescope in order to match M101's outer disk SFRs with our models

Undergraduate Research Assistant, Case Western Reserve University

Aug 2011–Aug 2013

Advisor: Earle Luck

I reduced and analyzed spectra of hundreds of cepheid variable stars observed at McDonald Observatory over the last 16 years to study the chemical composition in the milky way. I wrote several programs in Fortran to reduce, calibrate, coadd, and fit Cepheid spectra to determine key structural and chemical parameters.

OBSERVING EXPERIENCE

Atacama Large Millimeter Array

Cycle 7 2019

Mapping the Ionizing Photon Rates from Luminous Starburst Galaxies in the local Universe

PI: **Sean Linden**, CoI: L. Barcos-Munoz, L. Armus, T. Diaz-Santos, A. Evans, G. Privon, K. Larson, V. U., V. Charmandaris, E. Murphy, A. Medling, C. Molina, Y. Song
12.7 hours awarded in C43-3 configuration

Jansky Very Large Array

Cycle B 2019

The Origin of Anomalous Microwave Emission in Extragalactic Star-Forming Regions

PI: **Sean Linden**, CoI: A. Evans, E. Murphy, B. Hensley, D. Dong, E. Momjian, G. Helou
24.2 hours awarded in D configuration

Jansky Very Large Array

Cycle A 2019

Calibrating Star Formation Rate Diagnostics for Starburst Regions in LIRGs

PI: **Sean Linden**, CoI: A. Evans, E. Murphy, L. Armus, K. Larson, T. Diaz-Santos, G. Privon, L. Barcos-Munoz, Y. Song
8.16 hours awarded in A configuration

Green Bank Observatory

Cycle A 2019

3mm Maps of Star Formation in Nearby Galaxies

PI: E. Murphy, CoI: Brian Mason, **Sean Linden**, Dillon Dong, Emmanuel Momjian, Brandon Hensley, Eva Schinner, Bruce Draine, Jean Turner, Aaron Evans, Bruce Draine, George Helou
Priority B time awarded

Atacama Large Millimeter Array

Cycle 6 2018

Unveiling the Physics of the Only Known Compact Extragalactic Source of AME

PI: Eric Murphy, CoI: **Sean Linden**, Dillon Dong, Brandon Hensley, Emmanuel Momjian, Aaron Evans, George Helou, Bruce Draine

Priority A time awarded

Atacama Large Millimeter Array

Cycle 6 2018

Molecular Gas in Twin Galactic Outflows

PI: Kazushi Sakamoto, CoI: Susanne Aalto, Nathan Brunetti, Françoise Combes, **Sean Linden**, Aaron Evans, Nanase Harada, Youichi Ohyama, Christine Wilson
Priority B time awarded

Atacama Large Millimeter Array

Cycle 6 2018

Deriving the True Star Formation Rates in Dust-Obscured Starburst Galaxies

PI: Hanae Inami, CoI: Lee Armus, George Privon, **Sean Linden**, Loreto Barcos-Munoz, Stacey Alberts, Justin Howell, Aaron Evans, Jason Surace, Sabrina Stierwalt, Vivian U
Priority B time awarded

Atacama Large Millimeter Array

Cycle 6 2018 - Cycle 5 2017

Tracking the Properties of Gas Clumps in LIRGs Along the Complete Merger Sequence

PI: T. Diaz-Santos, CoI: Kirsten Larson, Lee Armus, Roberto Assef, Manuel Aravena, George Privon, Vassilis Charmandaris, Sabrina Stierwalt, **Sean Linden**, Philip Hopkins, Nick Scoville, Antonija Oklopčić, Aaron Evans, David Sanders
Priority B time awarded

Atacama Large Millimeter Array

Cycle 6 2018 - Cycle 5 2017

High Resolution Survey of the Gas and Dust Distribution in Nearby LIRGs

PI: L. Barcos-Munoz, CoI: Sergio Martin, Adam Leroy, George Privon, Aaron Evans, Lee Armus, Ezequiel Treister, **Sean Linden**, Sabrina Stierwalt
Priority B time awarded

Hubble Space Telescope

Mid-Cycle 25 2018

Star Cluster Formation and Evolution in LIRGS: A Joint JWST-HST Investigation

PI: A. Evans, CoI: **S. Linden**, L. Armus, H. Borish, V. Charmandaris, L. Chien, T. Diaz-Santos, D. Kim, J. Mazzarella, A. Medling, E. Murphy, G. Privon, J. Rich, Y. Song, S. Stierwalt, J. Surace, Vivian U
10 orbits awarded

Hubble Space Telescope

Mid-Cycle 25 2018

The Formation History of Milky Way Satellite Canes Venatici I

PI: D. Weisz, CoI: M. Boylan-Kolchin, N. Kallivayalil, **S. Linden**, T. Zick, P. Zivick
8 orbits awarded

James Webb Space Telescope

DDT-ERS 2020

A JWST Study of the Starburst-AGN Connection in Merging LIRGs

PI: Lee Armus, CoI: Appleton, P., Barcos-Munoz, L., Charmandaris, V., Diaz-Santos, T., Evans, A., Howell, J., Inami, H., Larson, K., **Linden, S.**, Mazzarella, J., Medling, A., Murphy, E., Privon, G., Rich, J., Sanders, D., Stierwalt, S., Surace, J.
30 hours awarded

Green Bank Observatory

Cycle A 2018

Building integrated SEDs with the GBT for LIRGs in GOALS

PI: **S. Linden**, CoI: Loreto Barcos-Munoz, Eric Murphy, Aaron Evans
8 hours of Priority A time awarded

Jansky Very Large Array

DDT-Cycle C 2017

The Origin of Anomalous 33GHz Emission from a Circumnuclear Region in NGC4725

PI: Eric Murphy, CoI: **Sean Linden**, E. Momjian, D. Dong, Brandon Hensley
1.25 hours awarded in C configuration

Gemini Southern Observatory

Cycle A 2017

Probing the dark halo of the Milky Way with GSAOI

PI: T.K. Fritz, CoI: **S. Linden**, N. Kallivayalil, S. Majewski, G. Damke, R. Beaton, J. Bovy, M. Boylan-Kolchin, R. Carrasco, R. van der Marel, T. Sohn, R. Davies, D. Angell, P. Zivick, B. Neichel

Continuation of 143 hours awarded in Cycle A 2015

Jansky Very Large Array

Cycle A 2016

High-Resolution Imaging of Obscured Star Formation in Luminous Infrared Galaxies

PI: **Sean Linden**, CoI: Aaron Evans, Adam Leroy, Eric Murphy, Lee Armus, Loreto Barcos, Todd Thompson, Dong-Chan Kim, Jason Surace, Sebastian Haan, Sabrina Stierwalt, George Privon, Emmanuel Momjian, F. Walter, E. Schinnerer, K. Sakamoto

15 hours of Priority A time awarded in A and C configurations

Atacama Large Millimeter Array

Cycle 4 2016

ALMA's First Look at the Crab Pulsar

PI: Allison Matthews, CoI: Scott Ransom, Christian Hayes, Matthew Pryal, Sandra Liss, **Sean Linden**, Thankful Cromartie, Scott Suriano, Loreto Barcos-Munoz, Haifeng Yang, Dustin Madison, Lauren Bittle, P. King

5 hours of priority C time awarded

Atacama Large Millimeter Array

Cycle 3 2015

Dense, Warm Molecular Gas and Star Formation in CO Luminous QSO Hosts

PI: Aaron Evans, CoI: Dong-Chan Kim, George Privon, Susanne Aalto, Sakamoto Kazushi, Jason Surace, Peter Barthel, **Sean Linden**, Mark Lacy, Loreto Barcos

2 hours of priority A time awarded

Atacama Large Millimeter Array

Cycle 3 2015

Do PG QSOs in the Local Universe Reside in Molecular Gas-Rich Hosts?

PI: Aaron Evans, CoI: Jason Surace, Susanne Aalto, George Privon, Mark Lacy, Dean Hines, Peter Barthel, **Sean Linden**, J. Braatz, D.-C. Kim, P. Martin, L. Barcos-Munoz

3 hours of priority B time awarded

Hubble Space Telescope

Cycle 23 2015

Proper Motion and Internal Kinematics of the Small Magellanic Clouds: Are the Magellanic Clouds bound to one another?

PI: Nitya Kallivayalil, CoI: **Sean Linden**, Charles R. Alcock, Jay Anderson, Gurtina Besla, Marla C. Geha, Chris S. Kochanek, Szymon Kozłowski, Roeland P. van der Marel

60 orbits awarded (30 in Cycle 23 and 30 in Cycle 21)

Additional programs for which I have made significant contribution:

SOFIA

Cycle 7 2019

SOFIA Observations of the Galactic Winds in NGC 1365 and NGC 2146

PI: **L. Armus**, CoI: Dr. Phil Appleton, Prof. Vassilis Charmandaris, Dr. Tom Soifer, Dr. Tanio Diaz-Santos, Dr. Alberto Bolatto, Dr. Kathryn Kreckel

390min of data awarded

Hubble Space Telescope

Cycle 24 2016

Hearts of Darkness: Compact Obscured Nuclei in S0/a Galaxies

PI: J. Gallagher, CoI: **A. Evans**, S. Alto, S. Koenig, S. Muller, Y. Ohyama, K. Sakamoto

7 orbits awarded

Jansky Very Large Array

Cycle A 2014

High-Resolution Imaging of Obscured Star Formation in Luminous Infrared Galaxies

PI: **Aaron Evans**, CoI: Adam Leroy, Eric Murphy, Lee Armus, Loreto Barcos, Todd Thompson, Dong-Chan Kim, Jason Surace, Sebastian Haan, Sabrina Stierwalt, George Privon, Emmanuel Momjian, Fabian Walter, E. Schinnerer
100 hours of Priority A time awarded in A and C configurations

Jansky Very Large Array

Cycle A 2013 – Cycle B 2013

The Star Formation in Radio Survey

PI: **Eric Murphy**, CoI: D. Dong, E. Momjian, R. C. Kennicutt, D. S. Meier, E. Schinnerer, J. L. Turner

TEACHING & MENTORING EXPERIENCE

Instructor of Record, University of Virginia

Jul 2015–Aug 2015

Instructor of record for ASTR 1220: *Stars, Galaxies, and the Universe in the Summer 2015 term at the University of Virginia*. I designed and implemented an original syllabus, set of homework assignments, quizzes, lectures, and projects for a 4 week 5 day a week course. I was the sole instructor for the course and received very high evaluations.

Teaching Assistant, University of Virginia

Aug 2014–May 2017

I have proctored and graded tests for ten sections of the introductory astronomy courses that each included over 100 students. I have been in charge of running a night lab exploring constellations and the night sky four nights a week for the introductory astronomy courses since the spring of 2015.

National Radio Astronomy Consortium Mentor, NRAO

May 2019–Aug 2019

I was a mentor for NAC summer student Adrienne Hembrick, who worked in my research group under Aaron Evans and Loreto Barcos-Munoz at the NRAO. I helped Adrienne from start to finish through a project using dendrograms to analyze HST images of star clusters and star-forming regions in a sample of luminous infrared galaxies in GOALS. This was done using a subset of the data I collected through HST-GO15472

National Radio Astronomy Consortium Mentor, NRAO

May 2018–Aug 2018

I was a mentor for NAC summer student Cecilia Molina, who worked in my research group under Aaron Evans at the NRAO. I helped Cecilia from start to finish through a project comparing the 33GHz thermal emission to Chandra X-ray data in luminous infrared galaxies in GOALS. This was done using a subset of the data I collected through VLA6A-204.

National Radio Astronomy Consortium Mentor, NRAO

May 2017–Aug 2017

I was a mentor for NAC summer student Maryam Hami, who worked in my research group under Aaron Evans at the NRAO. I helped Maryam from start to finish through a project comparing the 33GHz thermal emission to hydrogen recombination line data in the luminous infrared galaxies NGC 5257/8, NGC 5331, and IC 0214. This was done using a subset of the data I collected through VLA6A-204.

National Radio Astronomy Consortium Mentor, NRAO

May 2016–Aug 2016

I was a mentor for NAC summer student Antonio Porras, who worked in my research group under Aaron Evans at the NRAO. I helped Antonio from start to finish through a project comparing the 33GHz thermal emission to the dense gas emission in the luminous infrared galaxy NGC 6240. This was done using a subset of the data I collected through VLA6A-204.

OUTREACH EXPERIENCE

Dark Skies Bright Kids Volunteer, University of Virginia

Aug 2014–present

We plan and run a 10-week after school science program with underserved schools in Albemarle County Virginia. We have also been given a grant from the Hewlett-Packard Foundation to run 1-week long summer programs designed to interact with kids from counties southern Virginia, for the next three years. For the last 4 years I have been producing and managing all social media content and activity for DSBK across both Twitter and Facebook. I am also the PI of an IRB-SBS approved study utilizing the Draw A Scientist Test (DAST): "Evaluating the Impact of Dark Skies, Bright Kids Astronomy Clubs on Elementary School Students," which runs from April 2016-April 2020.

Leander McCormick Public Night Volunteer, University of Virginia

Aug 2014–present

I have run the McCormick Doghouse telescopes, and given multiple public talks during the Fall and Spring Public Night monthly series where we often serve up to one hundred people per night.

Fan Mountain Public Night Volunteer, University of Virginia

Aug 2014–present

I have run the Fan Mountain 40" control room presentation, and have given multiple public talks during the fall and spring Public Night annual series where we serve several hundred people over the course of the night.

ADDITIONAL LEADERSHIP EXPERIENCE

Raven Council Fellowship Chair, University of Virginia

May 2018–present

I am responsible for organizing and awarding the Raven societies' annual fellowship which is awarded to students throughout the university for excellence in research and is designed to aid them in completing their current thesis projects and attend meetings to present results.

Graduate Student Representative, University of Virginia

Jan 2017–present

I am responsible for managing all other graduate student roles within the department, organizing and running regular meetings at the end of each semester to review classes, TA assignments, etc., and finally, for providing all grad students with reminders about important deadlines and administrative tasks.

Astronomy Department Picnic Coordinator, University of Virginia

Jan 2016–Jan 2017

I was responsible for organizing and running a picnic for the Astronomy Department once a semester. These events included catered food, and were opportunities for faculty, staff, and their families to interact with graduate students in a social setting.

Sigma Nu Fraternity Treasurer, Case Western Reserve University

Jan 2011–May 2014

I was the treasurer and member of the Executive Council. I reformed the payment system in Sigma Nu by instituting Square Payments and converting reimbursements to an online automated system. For which I received the alumni award.

Student Leadership Journey Council President, Case Western Reserve University

Jan 2011–May 2014

I was the president and a member of the Executive Council. While president we received honorable mention for an outstanding on-campus event: The Presidents Dinner. This was a networking event for all of the campus presidents to facilitate multi-group collaborative event planning on campus. During my tenure, I was also an honorable mention for outstanding president of a student organization.

POSTERS & PRESENTATIONS

Contrasting Normal and Extreme Star-Forming Environments: A Multiwavelength Census of Star Clusters and Star-Forming Regions in Nearby Galaxies, American Astronomical Society Meeting 235, 15 min Dissertation talk, Jan 4-9th, 2020, Honolulu, HI

The Radio Continuum Properties of Dust-Obscured Star-Forming Environments in the Local Universe, Behind the Curtain of Dust III, Sexten Center for Astrophysics, 20 min selected talk, Jul 1st-5th, 2019, Sesto, Italy

Understanding the Resolved Radio Continuum Emission from Star-Forming regions in both Normal and Extreme Environments, Radio/Millimeter Astrophysical Frontiers in the Next Decade, Poster, Jun 25th-27th, 2019, Charlottesville, VA

Complementing Far-Infrared Studies of Star Formation in Nearby Galaxies with Multi-band Radio Observations, S. Linden, Exploring the Infrared Universe: The promise of SPICA, Poster, May 20th-23rd, 2019, Crete, Greece

A Multi-Wavelength Study of Massive Star-forming Regions in Luminous Infrared Galaxies in GOALS, The Laws of Star Formation: From the Cosmic Dawn to the Present Universe, 20 min selected talk, Jul 2nd-6th, 2018, Cambridge, UK

A Comparative Study of Star-Forming Regions in Luminous Galaxy Mergers and Normal Star-Forming Galaxies in the Local Universe, Astrophysical Frontiers in the Next Decade and Beyond, Poster, Jun 26th-29th, 2018, Portland, OR

Galaxy Mergers and the Fate of the Milky Way, Fan Mountain Public Night, University of Virginia, 30 min talk, Apr 13th, 2018, Charlottesville, VA

A VLA Study of Massive Star-Forming Regions in Luminous Infrared Galaxies, Bob Rood Memorial Symposium, University of Virginia, 10 min talk, Mar 2nd, 2018, Charlottesville, VA

Galaxy Mergers and the Fate of the Milky Way, Fan Mountain Public Night, University of Virginia, 30 min talk, Oct 13th, 2017, Charlottesville, VA

A Multi-Band VLA Comparison of Normal and Extreme Star-Forming Galaxies in the Local Universe, Measuring Star Formation in the Radio, Millimeter, and Submillimeter, University of Manchester, UK, 15 min selected talk, Jul 25th, 2017, Manchester, UK

Examining the Evolution of Star Clusters and Star-Forming Regions Within LEGUS/SFRS Galaxies, Linking Observations and Theory Across the Scales of SF in Galaxies, Sexten Center for Astrophysics, 15 min selected talk, Jul 11th, 2017, Sesto, Italy

The Nature of Obscured and Un-Obscured Star-Formation in Luminous Galaxy Mergers, Virginia Space Grant Consortium, College of William and Mary, 10 min talk, Apr 19th, 2017, Williamsburg, VA

Understanding Star Formation in the Radio: Normal Galaxies vs. Luminous Infrared Galaxies in the Local Universe, Bob Rood Memorial Symposium, University of Virginia, 10 min talk, Mar 31st, 2017, Charlottesville, VA

The Star Formation in Radio Survey, 83rd Annual Meeting of the APS Southeastern Section, 15 min selected talk, Nov 10-12th, 2016, Charlottesville, VA

The Star Formation in Radio Survey (SFRS): Multi-band VLA imaging for 50 Nearby Star-Forming Galaxies in SINGS/KINGFISH, 32nd New Mexico Symposium, Poster, Nov 4th, 2016, Socorro, NM

The Star Formation in Radio Survey (SFRS): Multi-band VLA imaging for 50 Nearby Star-Forming Galaxies in SINGS/KINGFISH, Half Decade of ALMA: Cosmic Dawns Transformed, Poster, Sep 20-23rd, 2016, Palm Springs, CA

Massive Star Cluster Formation and Destruction in Luminous Infrared Galaxies, 4th Annual DC/MD/VA Summer Astrophysics Meeting, George Washington Department of Physics and Astronomy, 10 min selected talk, Jul 15th, 2016, Washington, D.C.

The Formation and Destruction of Star Clusters in Luminous Infrared Galaxies, Virginia Space Grant Consortium, NASA Langley Research Center, 10 min talk, Apr 11th, 2016, Hampton, VA

The Formation and Destruction of Star Clusters in Luminous Infrared Galaxies, Huskey Graduate Research Exhibition, University of Virginia, 10 min selected talk, Mar 23rd, 2016, Charlottesville, VA

The Cluster Destruction and Mass Functions of Luminous Infrared Galaxies, American Astronomical Society Meeting 227, Poster 240.15, Jan 4-8th, 2016, Kissimmee, FL

Determining the Ages of Star Clusters in Interacting Galaxies, Bob Rood Memorial Symposium, University of Virginia, 10 min talk, Oct 16th, 2015, Charlottesville, VA

Determining the Ages of Star Clusters in Colliding Galaxies, S. Linden, McCormick Public Night Lecture Series, University of Virginia, 30 min talk, Aug 7th, 2015, Charlottesville, VA

Contributed Posters:

Assessing the Feasibility of X-ray Emission in Determining the Star Formation Rates of LIRGs, Molina, Cecilia N.; Evans, Aaron; **Linden, Sean**, American Astronomical Society Meeting 233, 368.04

Calibration of a Mid-Infrared Star-Formation Rate Tracer with 33 GHz Thermal Radio Continuum Emission, Whitcomb, Cory; Sandstrom, Karin; Murphy, Eric J.; **Linden, Sean**, American Astronomical Society Meeting 233, 366.08

Dark Skies, Bright Kids! - Year 10, DSBK Collaboration, American Astronomical Society Meeting 233, 147.09

Radio Continuum Emission from Galaxies: An Accounting of Energetic Processes, Eric Murphy, ASP Conference Series, Vol. 517

Dark Skies, Bright Kids! - Year 9, DSBK Collaboration, American Astronomical Society Meeting 231, 360.01

High Resolution 33 GHz Observations of Embedded Star Formation in NGC 6240, Porras, Antonio J., Evans, Aaron S., **Linden Sean**, Barcos-Munoz, Loreto, American Astronomical Society Meeting 229, 153.09

Dark Skies, Bright Kids! - Year 8, DSBK Collaboration, American Astronomical Society Meeting 229, 335.09

Dark Skies, Bright Kids! - Year 7, DSBK Collaboration, American Astronomical Society Meeting 227, 248.07

Attended Conferences:

Molecular Gas in Galactic Environments, NRAO, Apr 4-7th, 2016, Charlottesville, VA

LIST OF PUBLICATIONS

Refereed First Author Papers:

S. T. Linden, A. S. Evans, L. Armus, K. Larson, T. Diaz-Santos, E. J. Murphy, Y. Song, L. Barcos-Munoz, J. Howell, V. Charmandaris, G. C., Privon, V. U., A. M. Medling, J. Chu, et al. 2020, in prep, ApJ, *Massive Star Cluster Formation and Destruction in Luminous Infrared Galaxies in GOALS II: A WFC3 Survey of Nearby LIRGs*

S. T. Linden, E. J. Murphy, A. S. Evans, D. Dong, E. Momjian, R. Kennicutt, J. Turner, E. Schinnerer et al. 2020, accepted, ApJ, *The Star Formation in Radio Survey II: Very Large Array 3 -- 33\, GHz Observations of Nearby Galaxy Nuclei and Extranuclear Star-forming Regions*

S. T. Linden, A. S. Evans, Y. Song, L. Armus, K. Larson, T. Diaz-Santos, G. C. Privon, et al. 2019, 881, 70L, ApJ,

Massive Extranuclear Star-Forming Regions in Luminous Infrared Galaxies in GOALS

S. T. Linden, A. S. Evans, J. Rich, K. Larson, L. Armus, T. Diaz-Santos, G. C. Privon, J. Howell, H. Inami, D.-C. Kim, L.-H. Chien, T. Vavilkin, J. M. Mazzarella, J. A. Surace, S. Manning, A. Abdullah, A. Blake, A. Yarber, 2017, ApJ, 843, 91, *Massive Star Cluster Formation and Destruction in Luminous Infrared Galaxies in GOALS*

S. T. Linden, Matthew Pryal, Christian R. Hayes, Nicholas W. Troup, Steven R. Majewski, Brett H. Andrews, Timothy C. Beers, Ricardo Carrera, Katia Cunha, Peter Frinchaboy, Doug Geisler, Richard R. Lane, Christian Nitschelm, Kaike Pan, Alexandre Roman-Lopes, Verne V. Smith, Baitian Tang, J. G. Fernandez-Trincado, Sandro Villanova, Gail Zasowski, 2017, ApJ, 842, 49, *Timing the Evolution of the Galactic Disk with NGC 6791: An Open Cluster with Peculiar High- α Chemistry as seen by APOGEE*

Refereed Co-Author Papers:

Christian R. Hayes, Allison M. Matthews, Yiqing Song, **Sean T. Linden**, Robert F. Wilson, Molly Finn, Xiaoshan Huang, Kelsey E. Johnson, Anne M. McAlister, Brian Prager, Richard Seifert, Sandra E. Liss, Andrew M. Burkhardt, and Nicholas Troup, 2020, PhysRevPhysEducRes, 16, 1, *First results from the Dark Skies, Bright Kids astronomy club draw-a-scientist test*

E. J. Murphy, **S. T. Linden**, D. Dong, B. S. Hensley, E. Momjian, G. Helou, A. S. Evans, 2018, ApJ, 862, 20, *A New Detection of Extragalactic Anomalous Microwave Emission in a Compact, Optically-Faint Region of NGC 4725*

Fritz, T. K., **Linden, S. T.**, Zivick, P., Kallivayalil, N., Beaton, R., Bovy, J., Sales, L., Sohn, T., Angell, D., Boylan-Kolchin, M., Carrasco, E. R., Damke, G., Davies, R., Majewski, S., Neichel, B., van der Marel, R., 2016, ApJ, 840, 30, *The proper motion of Pyxis: the first use of adaptive optics in tandem with HST on a faint halo object*

E.J.Murphy, D.Dong, E.Momjian, **S. T. Linden**, Kennicutt, R. C., Meier, D. S., Schinnerer, E., Turner, J. L., 2018, ApJS, 234, 24, *The Star Formation in Radio Survey: Jansky Very Large Array 33 GHz Observations of Nearby Galaxy Nuclei and Extranuclear Star-forming Regions*

Kim, D.-C.; Momjian, E.; Yoon, Ilsang; Kim, Minjin; Evans, A. S.; Kim, Ji Hoon; **Linden, S. T.**; Barcos-Munoz, L.; Privon, G. C., 2019, ApJ, 882, 149K, *A Dual Black Hole Associated with Obscured and Unobscured AGNs: CXO J101527.2+625911*

Herrero-Illana, R.; Privon, G. C.; Evans, A. S.; Díaz-Santos, T.; Pérez-Torres, M. Á.; U, V.; Alberdi, A.; Iwasawa, K.; Armus, L.; Aalto, S.; Mazzarella, J.; Chu, J.; Sanders, D. B.; Barcos-Muñoz, L.; Charmandaris, V.; **Linden, S. T.**; Yoon, I.; Frayer, D. T.; Inami, H.; Kim, D.-C.; Borish, H. J.; Conway, J.; Murphy, E. J.; Song, Y.; Stierwalt, S.; Surace, J., 2019, A&A, 628, 71, *Molecular gas and dust properties of galaxies from the Great Observatories All-sky LIRG Survey*

Murphy, Eric; Armus, Lee; Bolatto, Alberto; Beswick, Rob; Barcos-Muñoz, Loreto; Brinks, Elias; Condon, James J.; Dale, Daniel A.; Dong, Dillon; Evans, Aaron S.; Kepley, Amanda A.; Leroy, Adam K.; **Linden, Sean T.**; Madore, Barry F.; Matthews, Allison; Pérez-Torres, Miguel; Schinnerer, Eva; Sargent, Mark T.; Tabatabaei, Fatemeh S.; Turner, Jean L.; Wong, Tony, 2019, BAAS, 51, 523, *Towards a Theory for Star Formation on All Scales*

Murphy, Eric; Ali-Haïmoud, Yacine; Cleary, Kieran A.; Dickinson, Clive; Draine, Bruce T.; Helou, George; Hensley, Brandon; Hoang, Thiem; Lazarian, Alex; **Linden, Sean**; Mason, Brian; Paladini, Roberta; Pearson, Timothy J.; Readhead, Anthony C., 2019, BAAS, 51, 430, *Unsolved Problems in Modern Astrophysics: Anomalous Microwave Emission*

Zivick, Paul; Kallivayalil, Nitya; Besla, Gurtina; Sohn, Sangmo Tony; van der Marel, Roeland P.; del Pino, Andrés; **Linden, Sean T.**; Fritz, Tobias K.; Anderson, J., 2019, ApJ, accepted, *The Proper Motion Field Along the Magellanic Bridge: a New Probe of the LMC-SMC Interaction*

U, Vivian; Medling, Anne M.; Inami, Hanae; Armus, Lee; Díaz-Santos, Tanio; Charmandaris, Vassilis; Howell, Justin; Stierwalt, Sabrina; Privon, George C.; **Linden, Sean T.**; Sanders, David B.; Max, Claire E.; Evans, Aaron S.; Barcos-Muñoz, Loreto; Chiang, Charleston W. K.; Appleton, Phil; Canalizo, Gabriela; Fazio, Giovanni; Iwasawa, Kazushi; Larson, Kirsten; Mazzarella, Joseph; Murphy, Eric; Rich, Jeffrey; Surace, Jason, 2019, *ApJ*, 871, 166, *Keck OSIRIS AO LIRG Analysis (KOALA): Feedback in the Nuclei of Luminous Infrared Galaxies*

Cook, D. O.; Lee, J. C.; Adamo, A.; Kim, H.; Chandar, R.; Whitmore, B. C.; Mok, A.; Ryon, J. E.; Dale, D. A.; Calzetti, D.; Andrews, J. E.; Aloisi, A.; Ashworth, G.; Bright, S. N.; Brown, T. M.; Christian, C.; Cignoni, M.; Clayton, G. C.; da Silva, R.; de Mink, S. E.; Dobbs, C. L.; Elmegreen, B. G.; Elmegreen, D. M.; Evans, A. S.; Fumagalli, M.; Gallagher, J. S.; Gouliermis, D. A.; Grasha, K.; Grebel, E. K.; Herrero, A.; Hunter, D. A.; Jensen, E. I.; Johnson, K. E.; Kahre, L.; Kennicutt, R. C.; Krumholz, M. R.; Lee, N. J.; Lennon, D.; **Linden, S.**; Martin, C.; Messa, M.; Nair, P.; Nota, A.; Östlin, G.; Parziale, R. C.; Pellerin, A.; Regan, M. W.; Sabbi, E.; Sacchi, E.; Schaerer, D.; Schiminovich, D.; Shabani, F.; Slane, F. A.; Small, J.; Smith, C. L.; Smith, L. J.; Taibi, S.; Thilker, D. A.; de la Torre, I. C.; Tosi, M.; Turner, J. A.; Ubeda, L.; Van Dyk, S. D.; Walterbos, R. AM; Wofford, A., 2019, *MNRAS*, 484, 4897, *Star cluster catalogues for the LEGUS dwarf galaxies*

Murphy, E. J.; Condon, J. J.; Alberdi, A.; Barcos-Muñozarcos, L.; Beswick, R. J.; Brinks, E.; Dong, D.; Evans, A. S.; Johnson, K. E.; Kennicutt, R. C., Jr.; **Linden, S. T.**; Muxlow, T. W. B.; Pérez-Torres, M.; Schinnerer, E.; Sargent, M. T.; Tabatabaei, F. S.; Turner, J. L., 2019, *ASPC*, 517, 421, *Radio Continuum Emission from Galaxies: An Accounting of Energetic Processes*

Grasha, K.; Calzetti, D.; Bittle, L.; Johnson, K. E.; Donovan Meyer, J.; Kennicutt, R. C.; Elmegreen, B. G.; Adamo, A.; Krumholz, M. R.; Fumagalli, M.; Grebel, E. K.; Gouliermis, D. A.; Cook, D. O.; Gallagher, J. S.; Aloisi, A.; Dale, D. A.; **Linden, S.**; Sacchi, E.; Thilker, D. A.; Walterbos, R. A. M.; Messa, M.; Wofford, A.; Smith, L. J., 2018, *MNRAS*, 481, 1016, *Connecting young star clusters to CO molecular gas in NGC 7793 with ALMA-LEGUS*

Torres-Albà, N.; Iwasawa, K.; Díaz-Santos, T.; Charmandaris, V.; Ricci, C.; Chu, J. K.; Sanders, D. B.; Armus, L.; Barcos-Muñoz, L.; Evans, A. S.; Howell, J. H.; Inami, H.; **Linden, S. T.**; Medling, A. M.; Privon, G. C.; U, V.; Yoon, I., 2018, *A&A*, 620, 140, *C-GOALS. II. Chandra observations of the lower luminosity sample of nearby luminous infrared galaxies in GOALS*

Inami H., Armus L., Matsuhara, H., Charmandaris V, Díaz-Santos T., Surace J., Stierwalt S., Ohshima Y, Howell, J. Marshall J., Evans A. S., **Linden, S. T.**, Mazzarella J, *A&A*, 617, 130, *The AKARI 2.5-5 micron spectra of luminous infrared galaxies in the local Universe*

Paul Zivick, Nitya Kallivayalil, Roeland P. van der Marel, Gurtina Besla, **Sean T. Linden**, Szymon Kozłowski, Tobias K. Fritz, C. S. Kochanek, J. Anderson, Sangmo Tony Sohn, Marla C. Geha, Charles R. Alcock, *ApJ*, 864, 55, *The Proper Motion Field of the Small Magellanic Cloud: Kinematic Evidence for its Tidal Disruption*

Fritz, T. K., Lokken, M., Kallivayalil, N., Wetzell, A., **Linden, S. T.**, Zivick, P., Tollerud, E. J., 2018, *ApJ*, 860, 164, *The Orbit and Origin of the Ultra-Faint Dwarf Galaxy Segue 1*

T. Diaz-Santos, L. Armus, V. Charmandaris N. Lu, S. Stierwalt, G. Stacey, S. Malhotra, P. P. van der Werf, J. H. Howell, G. C. Privon, J. M. Mazzarella, P. F. Goldsmith, E. J. Murphy, L. Barcos-Munoz, **S. T. Linden**, H. Inami, K. L. Larson, A. S. Evans, P. Appleton, K. Iwasawa S. Lord, D. B. Sanders, and J. A. Surace, 2017, *ApJ*, 846, 32, *A Herschel/PACS Far Infrared Line Emission Survey of Local Luminous Infrared Galaxies*

A. S. Evans, D.-C. Kim, T. Vavilkin, J. A. Surace, L. Armus, J. M. Mazzarella, J.H. Howell, G. C. Privon, S. Stierwalt, T. Diaz-Santos, V. Charmandaris, D. B. Sanders, L.-H. Chien, L. Barcos-Munoz, H. J. Borish, **S. T. Linden**, D. T. Frayer, & C. M. Ishida, 2017, in prep, *Hubble Space Telescope ACS Imaging of the GOALS Sample: Photometry, Atlas, and Description of the Galaxies*

Fritz, T. K., Kallivayalil, N., Carrasco, E. R., Neichel, B., Davies, R., Beaton, R., Angell, D., **Linden, S.**, Zivick, P., Majewski, S., Damke, G., Boylan-Kolchin, M., van der Marel, R., Sohn, T., *Astrometry with MCAO at Gemini and at ELTs*, Proceedings of AO4ELT4, 2016