

ALLISON KIRKPATRICK

ASSOCIATE PROFESSOR | UNIVERSITY OF KANSAS
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EXPERIENCE

2024 *to present* Associate Professor, University of Kansas, Lawrence KS
2018 *to 2024* Assistant Professor, University of Kansas, Lawrence KS
2016 *to 2018* Yale Center for Astronomy & Astrophysics Fellow, Yale University, New Haven CT
2010 *to 2016* Graduate Research Assistant, University of Massachusetts, Amherst MA
2007 *to 2009* Undergraduate Research Assistant, University of Florida, Gainesville FL

EDUCATION

2010 *to 2016* **Ph.D. Astronomy** | University of Massachusetts, Amherst MA
Doctoral Thesis advised by Prof. Alexandra Pope: “*The Effect of a Growing Black Hole on the Infrared Emission of Dusty Galaxies in the Distant Universe*”
2002 *to 2007* **B.S. Mathematics** | University of Florida, Gainesville FL

RESEARCH SUMMARY

I perform cutting-edge research probing the co-evolution of supermassive black holes and their host galaxies. I use *JWST*, *HST*, *Chandra*, and *Herschel* to measure the energetics and growth of black holes from $z \sim 3$ to today. I discovered the “cold quasar” population of rare, unobscured quasars in starbursting galaxies, where the black hole growth seems to entirely precede the stellar growth. I am currently using *JWST* to quantify the growth of black holes in galaxies like our Milky Way at $z \sim 1 - 2$. I played a significant role in crafting the successful *Cosmic Evolution Early Release Science* program, which obtained some of the first data with *JWST*. My portfolio consists of 64 refereed publications (including 3 student-led papers), and an *h*-index of 31. I have attracted \$1M in external funding, including \$343k in student-led awards and proposals, and I was a plenary speaker at the American Astronomical Society’s Winter Meeting in January 2023.

GRANTS & AWARDS

NASA/FINESST, *How Do Undetected AGN Affect Galaxy Evolution?*, PID: 21-ASTRO20-0087, PI, \$144k, 2022
Grants **NSF/REU**, *REU SITE: University of Kansas Physics and Astronomy Research Experiences for Undergraduates*, co-PI, \$399k, 2022
KU General Research Fund, *Cold Quasars and Their Role in Galaxy Evolution*, PI, \$9.6k, 2022
Big XII Faculty Fellowship, PI, \$2.5k, 2020
NASA/FINESST, *How Do Undetected AGN Affect Galaxy Evolution?*, PID: 19-ASTRO20-0078, PI, \$134k, 2019
Kansas Space Grant Consortium, *NASA Eyes, Kansas Minds Symposium*, PI, \$9k, 2019
KU Research-Intensive Course Grant, *Computational Programming in Stellar Astronomy*, PI, \$1k, 2019
TRESTLE Course Transformation Grant, *Illuminating Student Understanding of Light Emission Processes*, PI, \$2k, 2019
Awards

- William T. Kemper Fellowship for Teaching Excellence, KU, 2024
- KU Salute to Faculty Excellence, honoree, 2023
- KU Physics & Astronomy Teacher of the Year, 2022
- KU Physics & Astronomy Mentor of the Year, 2019
- John C. Wright/Byron A. Alexander Outstanding Graduate Mentor Award, Nominated, KU, 2019

Research Fellowships **YCAA Fellowship** | Yale University, 2016 - 2019, \$250K
ALMA Ambassadors Postdoctoral Program, NRAO, 2017, \$10k
Graduate School Fellowship | University of Massachusetts, 2013 - 2014, \$17K
Summer Research Fellowship, Massachusetts Space Grant Consortium, 2011, 2015, \$5k

OBSERVING

Principal Investigator **James Webb Space Observatory** Cycle 2 GO, PID GO-3497, PI, 67 hrs, \$450k
Hubble Space Observatory Cycle 28 archival, PID: AR-16137, PI, \$70k
Chandra Space Observatory Cycle 21 archival, PID: 21700372, student-led PI, \$65k
SOFIA Cycle 7, PID: 07_0096, allocated 11 hours and \$115k
NASA/Keck 2016B, PID: 31/2016B_N092M, allocated 2 nights and \$18k
Large Millimeter Telescope Early Science 2014, allocated 15 hours
Gemini Observatory 2012A, PID GN-2012A-Q-65, allocated 22.5 hours

Co-Investigator • JWST, Cycle 3, PID: GO-5893, PI K. Kakiichi, 263 hours
• JWST, Cycle 3, PID: GO-5407, PI G. Leung, 74 hours
• JWST, Cycle 2, PID: GO-3224, PI J. McKinney, 62 hours
• JWST, Cycle 2, PID: GO-4192, PI S. Alberts, 25 hrs, \$26k
• Gemini Fast Turn Around, 2021, PI K. Cooke, 3.3 hours
• JWST, Cycle 1, PID: AR-2446, PI D. Kocevski, \$25k
• JWST, Cycle 1, PID: GO-2079, PI S. Finkelstein, 121.7 hours
• JWST, Cycle 1, PID: GO-2016, PI A. Seth, 31.9 hours, \$28k
• JWST, Cycle 1, PID: GO-1837, PI J. Dunlop, 187.2 hours, \$25k
• JWST, Cycle 1, PID: GO-1762, PI A. Pope, 24.6 hours
• ALMA Cycle 7, PID: 2019.1.01303.S, PI E. Mills, 27 hours
• VLA 2019A, PID: 19B-254, PI J. McKinney, 9 hours
• Gemini 2018B, PID: GN-2018B-FT-113, PI C. Papovich, 4.7 hours
• Chandra Cool Attitude Targets, PI N. Cappelluti
• JWST DD-ERS, PID: 1345, PI S. Finklestein, 63.2 hours
• ALMA Cycle 5, PID: 2017.1.01347.S, PI A. Pope, 2.8 hours
• IRAM 2017B, PID: S17BT, PI C. Sharon, 13 hours
• NASA/Keck 2015B, PID 79/2015B_N127LA, PI H. Inami, 2 half nights
• Large Millimeter Telescope Early Science 2016, PI D. Calzetti, 40 hrs
• Large Millimeter Telescope Early Science 2015, PI A. Pope & A. Montaña, 40 hrs
• Large Millimeter Telescope Early Science 2014, PI M. Han, 10 hrs
• Subaru Telescope 2014B, PID S14B0105N, PI H. Inami, 2 half nights

CONFERENCES & TALKS

Invited Talks • Santa Cruz Galaxy Workshop, UC Santa Cruz, July 2024
• **Plenary Lecture**, American Physical Society Prairie Section Meeting, Univ. of Missouri, November 2023
• Multifrequency Behaviour of High Energy Cosmic Sources XIV, Palermo Italy, June 2023
• **Plenary Lecture**, American Astronomical Society Winter Meeting, Seattle WA, January 2023
• Beyond JWST and ALMA: Far-infrared Spectroscopy of Cosmic Ecosystems, AAS Winter Meeting Special Session, Seattle WA, January 2023
• The Cosmic Evolution Early Release Science Survey, AAS Winter Meeting Special Session, Seattle WA, January 2023
• Signatures of AGN Feedback: The Post-SOFIA Era, Virtual, October 2022
• **Plenary Lecture**, Prairie Section Meeting for the American Physical Society, Virtual, November 2021
• SOFIA/ALMA Summer Series, Virtual, July 2021
• Origins Space Telescope Community Workshop, New York City NY, June 2019
• Origins Space Telescope, AAS Summer Meeting Special Session, St. Louis MO, June 2019
• The Multifrequency Behavior of High Energy Cosmic Sources, Palermo Sicily, June 2019
• **Keynote Talk**, Mid-American Regional Astronomy Conference, Atchison KS, April 2019
• Dusting the Universe, Tucson AZ, March 2019
• Astrophysical Frontier in the Next Decade and Beyond, Portland OR, June 2018
• The Early Growth of Galaxies IV, Sesto Italy, January 2018

- Colloquia*
- University of Massachusetts, Amherst MA, December 2023
 - University of Wyoming, Laramie WY, September 2023
 - Carnegie Observatories, Pasadena CA, January 2023
 - Yale University, New Haven CT, December 2022
 - Stanford University, Stanford CA, May 2022
 - Lancaster University, Virtual, March 2022
 - Herzberg Astronomy & Astrophysics Research Centre, Virtual, October 2021
 - UC Irvine, Virtual, April 2020
 - US Naval Observatory, Washington DC, February 2020
 - Benedictine College, Atchison KS, September 2019
 - Kansas State University, Manhattan KS, April 2019
 - University of California Los Angeles, Los Angeles CA, March 2019
 - University of Oklahoma, Norman OK, December 2018
 - Drexel University, Philadelphia PA, February 2018
 - Rochester Institute of Technology, Rochester NY, February 2018
 - University of Connecticut, Storrs CT, December 2017
 - Wesleyan University, Middletown CT, November 2017
 - Green Bank Telescope, Green Bank WV, November 2017
 - Boston University, Boston MA, October 2017
 - University of Florida, Gainesville FL, March 2017

- Contributed Talks*
- NASA Eyes, Kansas Minds II, Lawrence KS, October 2022
 - NASA Eyes, Kansas Minds, Lawrence KS, October 2019
 - AAS Winter Session, Seattle WA, January 2019
 - Accretion History of AGN, Miami FL, December 2018
 - AAS Winter Session, Washington DC, January 2018
 - SMG20: Twenty Years of Submillimetre Galaxies, Durham UK, July 2017
 - Measuring Star Formation in the Radio, Millimetre, & Submm, Manchester UK, July 2017
 - Science with the Hubble and James Webb Space Telescopes V, Venice Italy, March 2017
 - Exploring the Universe with JWST - II, Montréal Canada, October 2016
 - Hidden Monsters: Obscured AGN & Connections to Galaxy Evolution, Hanover NH, August 2016
 - Dissertation Talk, AAS Winter Session, Kissimmee FL, January 2016
 - Demographics & Environment of AGN from Multiwavelength Surveys, Chania Crete, August 2015
 - The SED of High Redshift Galaxies, Sesto Italy, January 2015
 - 20 Years of the LMT Project, Cholula Mexico, November 2014
 - AAS Winter Session, Washington DC, January 2014

PUBLICATIONS

Highlighted papers (*i.e.*, first author papers or works in which I was significantly involved)

*indicates supervised undergraduate student; †indicates supervised graduate student; ‡indicates supervised postdoc

1. Mintz, S.*; Coleman, B.†; **Kirkpatrick, A.** 2024, *Cold Quasar Investigation: Comparing Star Formation Rates to Black Hole Growth*, MNRAS, 528, 7376
2. **Kirkpatrick, A.**; Yang, G.; Le Bail, A.; et al. 2023, *CEERS Key Paper. VII. JWST/MIRI Reveals a Faint Population of Galaxies at Cosmic Noon Unseen by Spitzer*, ApJL, 959, 7
3. Auge, C.; Sanders, D.; Treister, E.; Urry, C. M.; **Kirkpatrick, A.**; et al. 2023, *The Accretion History of AGN: The Spectral Energy Distributions of X-Ray-luminous Active Galactic Nuclei*, ApJ, 957, 19
4. McKinney, J.; Pope, A.; **Kirkpatrick, A.**; et al. 2023, *The IR Compactness of Dusty Galaxies Sets Star Formation and Dust Properties at $z \sim 0 - 2$* , ApJ, 955, 136
5. Coleman, B.†; **Kirkpatrick, A.**; Cooke, K. C.‡; et al. 2022, *Accretion history of AGN: Estimating the Host Galaxy Properties in X-ray Luminous AGN from $z = 0 - 3$* , MNRAS, 515, 82
6. Ji, Z.; Giavalisco, M.; **Kirkpatrick, A.**; et al. 2022, *AGN Selection Methods Have Profound Impacts on the Distributions of Host Galaxy Properties*, ApJ, 925, 74

7. Hatcher, C.[†]; **Kirkpatrick, A.**; Fornasini, F.; et al. 2021, *Where Do Obscured AGN Fit in a Galaxy's Timeline?*, AJ, 162, 65
8. Cooke, K. C.[‡]; **Kirkpatrick, A.**; Estrada, M.*; et al. 2020, *Dying of the Light: An X-ray Fading Cold Quasar at $z \sim 0.405$* , ApJ, 903, 106
9. **Kirkpatrick, A.**; Urry, C. M.; Brewster, J.; et al. 2020, *The Accretion History of AGN: A Newly Defined Population of Cold Quasars*, ApJ, 900, 5
10. **Kirkpatrick, A.**; Sharon, C.; Keller, E.; Pope, A. 2019, *CO Emission in Infrared-selected Active Galactic Nuclei*, ApJ, 879, 41
11. **Kirkpatrick, A.**; Hall, K.; Nyland, K.; Lacy, M.; Prandoni, I. 2019, *An ngVLA Wide Area AGN Survey*, ASP Conference Series, 517, 639
12. Pandya, V.; Brennan, R.; Somerville, R. S.; et al. *incl.* **Kirkpatrick, A.** 2017, *The Nature of Massive Transition Galaxies in CANDELS, GAMA, and Cosmological Simulations*, MNRAS, 472, 2054
13. **Kirkpatrick, A.**; Alberts, S.; Pope, A.; et al. 2017b, *The AGN–Star Formation Connection: Future Prospects with JWST*, ApJ, 849, 111
14. **Kirkpatrick, A.**; Pope, A.; Sajina, A.; et al. 2017a, *A Controlled Study of Cold Dust Content in Galaxies from $z = 0 - 2$* , ApJ, 843, 17
15. Dunlop, J. S.; McLure, R. J.; Biggs, A. D.; et al. *incl.* **Kirkpatrick, A.** 2017, *A Deep ALMA Image of the Hubble Ultra Deep Field*, MNRAS, 466, 861
16. Roebuck, E.; Sajina, A.; Hayward, C. C.; Pope, A.; **Kirkpatrick, A.**; et al. 2016, *The Role of Star-Formation and AGN in Dust Heating of $z=0.3-2.8$ Galaxies - II. Informing IR AGN Fraction Estimates Through Simulations*, ApJ, 833, 1
17. **Kirkpatrick, A.**; Pope, A.; Sajina, A.; et al. 2015, *The Role of Star-Formation and AGN in Dust Heating of $z=0.3-2.8$ Galaxies - I. Evolution with Redshift and Luminosity*, ApJ, 814, 9
18. **Kirkpatrick, A.**; Pope, A.; Arextaga, I.; et al. 2014b, *Early Science with the Large Millimeter Telescope: Exploring the Effect of AGN Activity on the Relationships between Molecular Gas, Dust and Star Formation*, ApJ, 796, 135
19. Nelson, E.; van Dokkum, P.; Franx, M.; *incl.* **Kirkpatrick, A.** 2014, *A Massive Galaxy in its Core Formation Phase Three Billion Years after the Big Bang*, Nature, 513, 394
20. **Kirkpatrick, A.**; Calzetti, D.; Kennicutt, R.; et al. 2014a, *Untangling the Nature of Spatial Variations of Cold Dust Properties in Star Forming Galaxies*, ApJ, 789, 130
21. **Kirkpatrick, A.**; Calzetti, D.; Galametz, M.; et al. 2013b, *Investigating the Presence of $500\mu\text{m}$ Submillimeter Excess Emission in Local Star Forming Galaxies*, ApJ, 778, 51
22. **Kirkpatrick, A.**; Pope, A.; Charmandaris, V.; et al. 2013a, *GOODS-Herschel: Separating High-Redshift Active Galactic Nuclei and Star-Forming Galaxies using Infrared Color Diagnostics*, ApJ, 763, 123
23. **Kirkpatrick, A.**; Pope, A.; Alexander, D. M.; et al. 2012, *GOODS-Herschel: Impact of Active Galactic Nuclei and Star Formation Activity on Infrared Spectral Energy Distributions at High Redshift*, ApJ, 759, 139
24. Sarajedini, A.; Dotter, A.; **Kirkpatrick, A.** 2009, *Deep 2MASS Photometry of M67 and Calibration of the Main-Sequence J-Ks Color Difference as an Age Indicator*, ApJ, 698, 1872

Refereed papers as co-author

25. LaMassa, S. M.; Peca, A.; Urry, C. M.; et al. *incl.* **Kirkpatrick, A.** 2024, *Stripe 82X Data Release 3: Multiwavelength Catalog with New Spectroscopic Redshifts and Black Hole Masses*, ApJ, accepted for publication, arXiv:2403.20160
26. Ronayne, K.; and the CEERS collaboration, *incl.* **Kirkpatrick, A.** 2024, *CEERS: $7.7\mu\text{m}$ PAH Star Formation Rate Calibration with JWST MIRI*, ApJ, 970, 61
27. Pirzkal, N.; and the NGDEEP collaboration, *incl.* **Kirkpatrick, A.** 2024, *The Next Generation Deep Extragalactic Exploratory Public Near-infrared Slitless Survey Epoch 1 (NGDEEP-NISS1): Extragalactic Star-formation and Active Galactic Nuclei at $0.5 < z < 3.6$* , ApJ, 969, 90

28. Goold, K.; and the ReveaLLAGN collaboration, *incl. Kirkpatrick, A.* 2024, *ReveaLLAGN 0: First Look at the JWST MIRI Data of Sombrero and NGC 1052*, ApJ, 966, 204
29. Holwerda, B. W.; and the CEERS collaboration, *incl. Kirkpatrick, A.* 2024, *Cosmic Evolution Early Release Science Survey (CEERS): Multiclassing Galactic Dwarf Stars in the Deep JWST/NIRCam*, MNRAS, 529, 1067
30. Bagley, M. B.; and the NGDEEP collaboration, *incl. Kirkpatrick, A.* 2024, *The Next Generation Deep Extragalactic Exploratory Public (NGDEEP) Survey*, ApJL, 965, 6
31. Pandya, V.; and the CEERS collaboration, *incl. Kirkpatrick, A.* 2024, *Galaxies Going Bananas: Inferring the 3D Geometry of High-redshift Galaxies with JWST-CEERS*, ApJ, 963, 54
32. Backhaus, B. E.; and the CEERS collaboration, *incl. Kirkpatrick, A.* 2024, *CEERS Key Paper. VIII. Emission-line Ratios from NIRSpec and NIRCam Wide-Field Slitless Spectroscopy at $z > 2$* , ApJ, 962, 195
33. Yang, G.; and the CEERS collaboration, *incl. Kirkpatrick, A.* 2023, *CEERS MIRI Imaging: Data Reduction and Quality Assessment*, ApJL, 956, 12
34. Fujimoto, S.; and the CEERS collaboration, *incl. Kirkpatrick, A.* 2023, *ALMA FIR View of Ultra-high-redshift Galaxy Candidates at $z \sim 11 - 17$: Blue Monsters or Low- z Interlopers?*, ApJ, 955, 130
35. Yang, G.; and the CEERS collaboration, *incl. Kirkpatrick, A.* 2023, *CEERS Key Paper. VI. JWST/MIRI Uncovers a Large Population of Obscured AGN at High Redshifts*, ApJL, 950, 5
36. Papovich, C.; and the CEERS collaboration, *incl. Kirkpatrick, A.* 2023, *CEERS Key Paper. V. Galaxies at $4 < z < 9$ are Bluer than They Appear—Characterizing Galaxy Stellar Populations from Rest-frame 1 μm Imaging*, ApJL, 949, 18
37. Sokol, Alyssa D.; Yun, M.; Pope, A.; Kirkpatrick, A.; Cooke, K. 2023, *UV-FIR SED Modelling of AGNs in IR-Luminous Galaxies up to $z \sim 2.5$: Understanding the Effects of Torus Models*, MNRAS, 521, 818
38. Pérez-González, P. G.; and the CEERS collaboration, *incl. Kirkpatrick, A.* 2023, *CEERS Key Paper. IV. A Triality on the Nature of HST-Dark Galaxies*, ApJL, 946, 16
39. Kartaltepe, J.; and the CEERS collaboration, *incl. Kirkpatrick, A.* 2023, *CEERS Key Paper. III. The Diversity of Galaxy Structure and Morphology at $z=3-9$ with JWST*, ApJL, 946, 15
40. Kocevski, D. D.; and the CEERS collaboration, *incl. Kirkpatrick, A.* 2023, *CEERS Key Paper. II. A First Look at the Resolved Host Properties of AGN at $3 < z < 5$ with JWST*, ApJL, 946, 14
41. Finkelstein, S. L.; and the CEERS collaboration, *incl. Kirkpatrick, A.* 2023, *CEERS Key Paper. I. An Early Look into the First 500 Myr of Galaxy Formation with JWST*, ApJL, 946, 13
42. Bagley, M. B.; and the CEERS collaboration, *incl. Kirkpatrick, A.* 2023, *CEERS Epoch 1 NIRCam Imaging: Reduction Methods and Simulations Enabling Early JWST Science Results*, ApJL, 946, 12
43. Trump, J. R.; and the CEERS collaboration, *incl. Kirkpatrick, A.* 2023, *The Physical Conditions of Emission-Line Galaxies at Cosmic Dawn from JWST/NIRSpec Spectroscopy in the SMACS 0723 Early Release Observations*, ApJ, 945,35
44. Zavala, J. A.; and the CEERS collaboration, *incl. Kirkpatrick, A.* 2023, *A Dusty Starburst Masquerading as an Ultra-High Redshift Galaxy in JWST CEERS Observations*, ApJL, 943, 9
45. Peca, A.; Cappelluti, N.; Urry, C. M.; et al. *incl. Kirkpatrick, A.* 2023, *On the Cosmic Evolution of AGN Obscuration and the X-ray Luminosity Function: XMM-Newton and Chandra Spectral Analysis of the 31.3 deg² Stripe 82X*, ApJ, 943, 162
46. Finkelstein, S. L.; and the CEERS collaboration, *incl. Kirkpatrick, A.* 2022, *A Long Time Ago in a Galaxy Far, Far Away: A Candidate $z \sim 12$ Galaxy in Early JWST CEERS Imaging*, ApJL, 940, 55
47. Stone, M.; Pope, A.; McKinney, J.; et al. *incl. Kirkpatrick, A.* 2022, *Measuring Star Formation and Black Hole Accretion Rates in Tandem Using Mid-infrared Spectra of Local Infrared Luminous Galaxies*, ApJ, 934, 27
48. Lambrides, E.; Chiaberge, M.; Heckman, T.; Kirkpatrick, A.; et al. 2021, *Lower-Luminosity Obscured AGN Host Galaxies are not Predominantly in Major-Merging Systems at Cosmic Noon*, ApJ, 919, 129

49. Lambrides, E.; Watts, D. J.; Chiaberge, M.; Tchernyshyov, K.; **Kirkpatrick, A.**; et al. 2021, *Merger or Not: Accounting for Human Biases in Identifying Galactic Merger Signatures*, ApJ, 919, 43
50. Yang, G.; Papovich, C.; Bagley, M. B.; et al. *incl.* **Kirkpatrick, A.** 2021, *JWST/MIRI Simulated Imaging: Insights into Obscured Star Formation and AGNs for Distant Galaxies in Deep Surveys*, ApJ, 908, 144
51. Harrington, K. C.; Weiss, A.; Yun, M. S.; et al. *incl.* **Kirkpatrick, A.** 2021, *Turbulent Gas in Lensed Planck-selected Starbursts at $z \sim 1 - 3.5$* , ApJ, 908, 95
52. Florez, J.; Jogee, S.; Sherman, S.; et al. *incl.* **Kirkpatrick, A.** 2020, *Exploring AGN and Star Formation Activity of Massive Galaxies at Cosmic Noon*, MNRAS, 497, 3273
53. McKinney, J.; Pope, A.; Armus, L.; et al. *incl.* **Kirkpatrick, A.** 2020, *Measuring the Heating and Cooling of the Interstellar Medium at High Redshift: PAH and [CII] Observations of the Same Star Forming Galaxies at $z \sim 2$* , 2020, ApJ, 892, 119
54. Ananna, T. T.; Treister, E.; Urry, C. M.; et al. *incl.* **Kirkpatrick, A.** 2020, *The Accretion History of AGN. II. Constraints on AGN Spectral Parameters Using the Cosmic X-ray Background*, ApJ, 889, 17
55. Ananna, T. T.; Treister, E.; Urry, C. M.; Ricci, C.; **Kirkpatrick, A.**; et al. 2019, *The Accretion History of AGN. I. Supermassive Black Hole Population Synthesis Model*, ApJ, 871, 240
56. McLure, R. J.; Dunlop, J. S.; Cullen, F.; et al. *incl.* **Kirkpatrick, A.** 2018, *Dust Attenuation in $2 < z < 3$ Star-Forming Galaxies from Deep ALMA Observations of the Hubble Ultra Deep Field*, MNRAS, 476, 3991
57. Calzetti, D.; Wilson, G. W.; Draine, B. T.; et al. *incl.* **Kirkpatrick, A.** 2018, *Spatially Resolved Dust, Gas, and Star Formation in the Dwarf Magellanic Irregular NGC 4449*, ApJ, 852, 106
58. Ananna, T. T.; Salvato, M.; LaMassa, S.; et al. *incl.* **Kirkpatrick, A.** 2017, *AGN Populations in Large Volume X-ray Surveys: Photometric Redshifts and Population Types Found in the Stripe 82X Survey*, ApJ, 850, 66
59. Pope, A.; Montaña, A.; Battisti, A.; et al. *incl.* **Kirkpatrick, A.** 2017, *Early Science with the Large Millimeter Telescope: Detection of Dust Emission in Multiple Images of a Normal Galaxy at $z \sim 4$ Lensed by a Frontier Fields Cluster*, ApJ, 838, 137
60. Bonato, M.; Sajina, A.; De Zotti, G.; et al. *incl.* **Kirkpatrick, A.** 2017, *Exploring the Evolution of Star Formation and Dwarf Galaxy Properties with JWST/MIRI Serendipitous Spectroscopic Surveys*, ApJ, 836, 171
61. Rujopakarn, W.; Dunlop, J. S.; Rieke, G. H.; et al. *incl.* **Kirkpatrick, A.** 2016, *VLA and ALMA Imaging of Intense, Galaxy-Wide Star Formation in $z \sim 2$ Galaxies*, ApJ, 833, 12
62. Boquien, M.; Kennicutt, R.; Calzetti, D.; et al. *incl.* **Kirkpatrick, A.** 2016, *Towards Universal Hybrid Star Formation Rate Estimators*, A&A, 591, 6
63. Galametz, M.; Albrecht, M.; Kennicutt, R.; et al. *incl.* **Kirkpatrick, A.** 2014, *Dissecting the Origin of the Submillimeter Emission in Nearby Galaxies with Herschel and LABOCA.*, MNRAS, 439, 2542
64. Pope, A.; Wagg, J.; Frayer, D.; et al. *incl.* **Kirkpatrick, A.** 2013, *Probing the Interstellar Medium of $z > 1$ Ultraluminous Infrared Galaxies through Interferometric Observations of CO and Spitzer Mid-Infrared Spectroscopy*, ApJ, 772, 92

White papers

1. Megeath, S. T.; Armus, L.; Bentz, M.; et al. *incl.* **Kirkpatrick, A.** 2019, *The Legacy of the Great Observatories: Panchromatic Coverage as a Strategic Goal for NASA Astrophysics*, Bulletin of the American Astronomical Society, 51, 184
2. Moravec, E.; Czekala, I.; Follette, K.; et al. *incl.* **Kirkpatrick, A.** 2019, *Astro2020 APC White Paper: The Early Career Perspective on the Coming Decade, Astrophysics Career Paths, and the Decadal Survey Process*, Bulletin of the American Astronomical Society, 51, 8
3. Pope, A.; Armus, L.; Murphy, E.; et al. *incl.* **Kirkpatrick, A.** 2019, *Simultaneous Measurements of Star Formation and Supermassive Black Hole Growth in Galaxies*, Bulletin of the American Astronomical Society, 51, 330

Other

1. **Kirkpatrick, A.**; Coleman, B.[†]; Cook, C.*; Goel, A.* 2024, *the Peculiar Properties of Cold Quasars*, Multifrequency Behaviour of Higher Energy Cosmic Sources XIV, conference proceedings, 59

2. Cionitti, R.*; Coleman, B.†; **Kirkpatrick, A.**; Troiani, G. 2023, *AGN's Deadness Over Cosmic Time: UVJ Diagrams of X-Ray AGN*, Research Notes of the American Astronomical Society, 7, 165
3. Cooke, K. C.‡; **Kirkpatrick, A.**; Schmelz, J. 2021, *Cold Quasars and the Evolution of Galaxies*, SOFIA Science, Volume 6, No. 1
4. **Kirkpatrick, A.**; Hamblin, K.†; Carlile, C.; Floyd, C.; King, M. 2020, *Course-Based Research Assignment: Age of Clusters (ASTR 591)*, KU ScholarWorks
5. Cooke, K. C.‡; Connelly, J. L.; Jones, K. M.; **Kirkpatrick, A.**; Mills, E. A. C.; Crossfield, I. J. M. 2020, *Astronomy Paper Seminar Participation Guide & Reading Walkthrough*, arXiv: 2006.12566
6. Henry, O. K.; Pope, A.; McKinney, J.; **Kirkpatrick, A.** 2019, *A Comparison of Mid-Infrared Spectral Decomposition and Full Infrared Spectral Energy Distribution Modeling to Quantify AGN in Dusty Galaxies: The Necessity of Data between 6 and 14 microns*, Research Notes of the American Astronomical Society, 3, 199
7. Armus, L.; Megeath, S. T.; Corrales, L.; Marengo, M.; **Kirkpatrick, A.**; et al. 2019, *Great Observatories: the Past and Future of Panchromatic Astrophysics*, NASA Great Observatories, Science Analysis Group Report, arXiv: 2104.00023

TEACHING & MENTORING SUMMARY

I run a large research group and ensure student success through hands-on mentoring, setting attainable goals, and fostering an environment of positivity and collaboration. My dedicated mentoring is evidenced by the large number of internal and external awards my students have won and the number of papers published or in preparation. As of 2024, I have personally coached 6 NSF GRFP and 2 NASA FINESST winners. All of my undergraduates who have applied for graduate school have been accepted. In the classroom, I strive for a data-driven methodology that engages student learning on multiple fronts. I teach in an active learning manner, and I have brought computational projects into the undergraduate classroom. I have won multiple grants to introduce new, cutting-edge techniques into the classroom. My teaching is consistently rated highly.

MENTORING

<i>Postdocs</i>	Bren Backhaus KU, 2024- Kristen Jones KU, 2021 Kevin Cooke KU, 2019-2021
<i>Ph.D. Students</i>	Brandon Coleman KU, 2018-2024 (2024 NASA Postdoctoral Program Fellowship Winner) Kurt Hamblin KU, 2019- (2022 NASA/FINESST Winner) Greg Troiani KU, 2019- Jason Pero KU, 2023- Rachel Cionitti UMKC (externally advised), 2024-
<i>M.S. Students</i>	Cassandra Hatcher KU, 2018-2021 (2019 NASA/FINESST Winner; 2019 NSF GRFP Honorable Mention)
<i>B.S. Students</i>	<i>*indicates majors from outside the Physics & Astronomy department</i> Finn Anderson KU, 2024- Disha Chakraborty KU, 2023- Dhwani Vani KU, 2023- Averi Harker* KU, 2023 Haley Pfeifer* KU, 2023-2024 Aaron Reith* KU, 2023-2024 Thresa Kelly KU, 2021-2023 (2024 NSF GRFP Winner) Rachel Cionitti KU, 2021-2023 Anika Goel KU, 2020-2023 (2021 KU Undergraduate Research Award) Casey Carlile KU, 2019-2022 (2022 NSF GRFP Winner; 2020, 2021 KU Undergrad Research Award) Claire Cook KU, 2019-2022 Logan O'Brien KU, 2020-2021 Katelin Waters KU, 2021 Olyvia Young* KU, 2020-2021 Wichahpi King, 2020 Michael Estrada* KU, 2019-2020

Kaz Gary | KU, 2019-2020
Jordan Johnson* | KU, 2019
Kurt Hamblin, Univ. of Maryland BC | Yale SURF Program, 2017
Randall Rojas Bolivar, Senior Thesis | UMass, 2015-2016
Adam Battista | UMass, 2015-2016

*KU REU
Students*

Leyna Bajaj | UMass, 2024
Clare Oldenburg | Hillsdale College, 2024
Megan Schultze | Rice, 2024
Ansh Gupta | ASU, 2023-2024 (2024 NSF GRFP Winner)
Caitlin Solis | Kansas State, 2023
Sasha Mintz | Virginia Tech, 2022-2024 (2024 NSF GRFP Winner)
Derek Sikorski | Indiana University, 2022

High School

Victoria Song, Summer Internship | Choate Rosemary Hall, 2017
James Polletti, Advanced Science Research Program | Eastchester High School, 2017-2018

TEACHING

Courses Taught

ASTR191 + ASTR 196, “Online Contemporary Astronomy + Lab”, 4 credit online course | KU
Fall 2024
ASTR191, “Contemporary Astronomy”, 3 credit undergraduate course | KU
Spring 2024 – 57 students
Spring 2023 – 43 students
Fall 2022 – 56 students
Fall 2020 – 37 students, Instructor rating: 4.7/5.0
Fall 2019 – 77 students, Instructor rating: 4.3/5.0
Spring 2019 – 73 students, Instructor rating: 4.5/5.0
Fall 2018 – 76 students, Instructor rating: 4.4/5.0
ASTR591, “Stellar Astronomy”, 3 credit undergraduate course | KU
Fall 2023 – 32 students
Fall 2021 – 15 students
Fall 2019 – 17 students, Instructor rating: 4.6/5.0
ASTR792, “Active Galactic Nuclei”, 3 credit graduate course | KU
Spring 2022 – 9 students
PHSX717, “Graduate Student Seminar”, 1 credit graduate course | KU
Fall 2022 – 12 students
PHSX703, “Proposal Writing Seminar”, 1 credit graduate course | KU
Spring 2024 – 7 students
ASA Summerfuel Pre-College Program, “Introductory Astronomy” | UMass, 2012 & 2013

*Excerpts from
Teaching
Evaluations*

- “The bulk of this class was discussion-based which I really enjoyed. I felt myself getting better at reading and critiquing proposals as the semester went on. I also really enjoyed all the feedback I got throughout the writing process – that was invaluable as I work to become a better writer.”–Spring, 2024
- “Prof. Kirkpatrick is great at creating a positive, organized, and driven learning environment. Students are challenged, but never made to feel they aren’t capable of succeeding.”–Spring, 2022
- “I think the course was taught excellently. There was a good mix of individual effort and team collaboration. It was a good choice to use a variety of types of learning material.”–Fall, 2021
- “I really appreciated Dr. Kirkpatrick’s openness to feedback about the class! The learning environment was one of the best I’d had in an upper level class like this. Usually this amount of learning comes with way more stress. The structure of this class and Dr. Kirkpatrick’s teaching methods were exceptional.”–Fall, 2021
- “I have never felt more respected and listened to as a student and as a person. I feel like Dr. Kirkpatrick actually cares about us, how she is teaching the class, the amount of work she is asking busy students to do, and that we feel comfortable and safe in her class. I wish more professors would try to do what she is doing!”–Fall, 2019

OUTREACH

Inclusion Activities

Nature OpEd, *Beware of Casting Aside Outliers*, Nature Astronomy, Vol. 8, Nov. 2023
AstronomerAND Podcast, guest interview, 2022
KU Revolutionizing Academia Learning Community, participant, \$1K, 2021
Picture a Scientist, organized/hosted a virtual screening of the documentary and a discussion panel | KU, 2020
Women in Science Day | Washburn University, 2019
Girls Science Investigations | Yale University, 2016
Women's Astronomy Forum, Founder, | University of Florida, 2006 - 2007

Public Outreach

- Pioneer Ridge Assisted Living, Lawrence KS, 2022, 2023, 2024
- Astronomy League national conference (ALCon), **invited speaker**, Overland Park KS, 2024
- American Mensa Annual Gathering, **invited speaker**, Kansas City KS, 2024
- Nerd Nite, speaker, Lawrence KS, 2024
- Heart of America Star Party, **featured speaker**, ASKC Dark Sky Site, MO, 2022, 2023
- Author Research in Action, **panelist**, Johnson County Library, KS, 2020
- International Day of Women and Girls in STEM, **keynote speaker**, Daytona Beach FL, 2020
- Science Cafe, guest speaker, Topeka KS, 2020
- Galaxy Forum at the Cosmosphere, **keynote speaker**, Hutchinson KS, 2019
- Astronomy Society of Kansas City, guest speaker, Kansas City MO, 2019
- Science Cafe, guest speaker, Wichita KS, 2019
- North Haven Middle School, career fair speaker, North Haven CT, 2018
- Notre Dame High School, guest speaker, New Haven CT, 2018
- Pathways to Science, Yale University, New Haven CT, 2016
- Arunah Hill Days Star Party, guest speaker, Cummington MA, 2016
- Astronomical Society of Greater Hartford, guest speaker, Hartford CT, 2014

Selected Press

New Scientist's Dead Planets Society, podcast, "Putting Black Holes Inside Stuff" | July 2024
New Scientist's Dead Planets Society, podcast, "How to Destroy a Black Hole" | April 2023
Spooky Science Sisters, podcast, "The Fermi Paradox" | April 2024
University Daily Kansan, "Searching the sky for black holes with the world's most powerful space telescope" | October 2023
Science News, "Active supermassive black holes may be rarer than previously thought" | September 2023
Into the Impossible with Brian Keating, podcast, "No the Universe ISN'T 27 billion years old" | July 2023
The Atlantic, "Astronomers Were Not Expecting This" | March 2023
Spooky Science Sisters, podcast, "In Space, Everything Will Make You Scream" | March 2023
Space.com, "The James Webb Space Telescope never disproved the Big Bang. Here's how that falsehood spread." | September 2022
Kansas Public Radio, "KU Researcher Helping Unravel James Webb Space Telescope Wonders" | August 2022
Event Horizon Podcast, "Surprising New Discoveries Made by James Webb" | August 2022
Nature News, "Four revelations from the Webb telescope about distant galaxies" | July 2022
Christian Science Monitor, "Cosmic vision: What secrets NASA's space telescope might reveal" | December 2021
Science News, "Astronomers Spotted a Rare Galaxy Shutting Down Star Formation" | January 2021
Forbes, "Against All Odds, New Stars Are Being Born" | November 2020
NASA website, "Galaxy Survives Black Hole's Feast-For Now" | November 2020
Sky and Telescope, "Invisible Galaxies Found in the Young Universe" | August 2019
Kansas Public Radio, "KU Professor Makes Breakthrough on Galactic Life Cycles" | July 2019
Event Horizon Podcast, "Cold Quasars: The Death of Galaxies" | June 2019
The Washington Post, "This is What it Looks Like When Galaxies are about to Die" | June 2019
Vice, "A Newly Discovered Type of Galaxy Keeps Producing Stars as it Dies" | June 2019
Nature Astronomy, "Not That Different After All" | June 2019
The Jodcast, podcast interview | January 2018
WMUA, "UnderCurrents Science on the Air" | April 2015

Press Release, “New Telescope lets Astronomers Peer into Distant Galaxies’ Star-Forming Centers” | November 2014
UMass Magazine, “Birth of a Telescope” | March 2014

SERVICE SUMMARY

Service to the university, to my department, and to my community is a priority, as is evidenced by my extensive service record. My service highlights include co-chairing and co-authoring the report for NASA’s Great Observatories Science Analysis Group, which was so impactful that it guided recommendations in the National Academies of Science’s 2020 Decadal Report. I also attracted the funding for and organized the successful *NASA Eyes, Kansas Minds* 2019 Symposium which was attended by over 120 people, including our local state representative. My priority in university service is undergraduate mentoring and research. I organized our department’s summer undergraduate program, which led to the creation of a successful NSF REU Site, which I co-direct. I am deeply committed to equity & inclusion, leading me to found the department’s DEI committee in 2020.

EXTERNAL PROFESSIONAL ACTIVITIES

<i>Time Allocation Committees</i>	<ul style="list-style-type: none"> • Fermi Gamma-ray Space Telescope, 2024 • Nuclear Spectroscopic Telescope Array (NuSTAR), 2020, 2024 • Keck Observatory (NASA), Panel chair, 2024 • Las Cumbres Observatory, 2023 • The Neil Gehrels Swift Observatory, Panel chair, 2021 • National Radio Astronomy Observatory, 2019-2021 • Spitzer Space Telescope, 2018 • Atacama Large Millimeter/submillimeter Array (ALMA), Technical Secretary, 2017 • Large Millimeter Telescope, 2013
<i>Grant Review Committees</i>	<ul style="list-style-type: none"> • Astrophysics Theory Program Grant Review Panel, Panel chair NASA, 2023 • Astrophysics Theory Program Grant Review Panel NASA, 2021 • Astrophysical Data Analysis Grant Review Panel, Panel chair NASA, 2021 • Astronomy & Astrophysics Grant Review Panel National Science Foundation, 2020
<i>Other Service</i>	<ul style="list-style-type: none"> • MIDEX/Mission of Opportunity, Science Review, panel member NASA, 2022 • <i>21st Century Astronomy</i>, Author of Ancillary Material Norton Publisher, 2021-2022 • The Great Observatories Science Advisory Group, subcommittee co-chair NASA, 2019 • Origins Space Telescope Working Group 2017-2021 • Early Career Focus Session for the Astro2020 Decadal Survey National Academy of Sciences, 2018 • Chambliss Poster Judge AAS Winter Meeting, 2014 & 2016 • AAS Congressional Visits Day, Washington DC, March 2016
<i>Ph.D. Student</i>	<ul style="list-style-type: none"> • Erin Lambrides, Johns Hopkins Defense Committee External Member July 2021
<i>Meetings Organized</i>	<ul style="list-style-type: none"> • First Year of Science with JWST, SOC Baltimore, 2023 • NASA Eyes, Kansas Minds II: JWST, Chair Virtual, 2021 • NASA Eyes, Kansas Minds, Chair University of Kansas, 2019 • Undergraduate Symposium, Co-Chair University of Missouri, Kansas City, 2019 • Northeast Astronomy Postdoc Retreat, Chair New York, NY, 2017 • ALMA Proposal Writing Workshop, Co-Chair Yale University, 2017
<i>Referee for</i>	<ul style="list-style-type: none"> • Nature Astronomy, The Astrophysical Journal, Monthly Notices of the Royal Astronomical Society, Publications of the Astronomical Society of the Pacific

UNIVERSITY PROFESSIONAL ACTIVITIES

<i>University Service</i>	<ul style="list-style-type: none"> • Senior Administrative Fellows, cohort member KU, 2024-2025 • New Faculty Development, Physical Sciences & Engineering Review Panel KU, 2023- • Goldwater Scholarship Campus Nomination Committee KU, 2020-2021 • Multicultural Scholars Program, Co-Director for Natural Sciences KU, 2018-2022
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*Departmental
Service*

- Project Owner, *KU Physics & Astronomy* | *JUST Research*, LaunchKU Campaign, 2024. Raised \$9380 for undergraduate research fellowships
- **Associate Chair**, | *KU Physics & Astronomy*, 2023-
- **Director of Undergraduate Studies**, | *KU Physics & Astronomy*, 2023-
- **KU Physics & Astronomy REU**, Creator & Co-Director | *KU*, 2022-
- **Jayhawk Undergraduate Summer Training program**, Creator & Co-Director | *KU*, 2020-
- **Diversity, Equity, and Inclusion Committee**, Inaugural Chair | *KU*, 2020-2022
- Diversity in Physics, Faculty Advisor | *KU*, 2019-2022
- Undergraduate Committee | *University of Kansas*, 2019-
- Faculty Search Committee | *University of Kansas*, 2018, 2021
- **Astronomy Undergraduate Advisor** | *KU*, 2018-
- YCAA Seminar, Co-Organizer | *Yale*, 2017-2018
- Undergraduate Symposium, Creator & Chair | *Yale University*, 2017
- Astronomy Undergraduate Summer Program, Creator & Director | *Yale*, 2017
- Session Chair, State Undergraduate Research Conference | *UMass*, 2012 & 2013
- Faculty Search Committee, Graduate Liaison | *UMass Department of Astronomy*, 2012

*Graduate
Committees*

- Tony Renzaglia, *KU* | Ph.D. Defense, July 2024
- Brandon Coleman, *KU* | Ph.D. Defense, **Chair**, May 2024
- Kurt Hamblin, *KU* | Comprehensive Exam, **Chair**, March 2023
- David Coria, *KU* | Comprehensive Exam, February 2023
- Mindy Townsend, *KU* | Ph.D. Defense, December 2022
- Jennifer Cooper, *KU* | Ph.D. Defense, May 2021
- Cassandra Hatcher, *KU* | Master's Defense, **Chair**, April 2021
- Mindy Townsend, *KU* | Master's Defense, February 2020
- Jennifer Cooper, *KU* | Comprehensive Exam, December 2019