MEGAN REITER

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RESEARCH INTERESTS

stellar feedback, photoevaporation, star clusters, intermediate- and high-mass star formation

POSITIONS

Assistant Professor of Astronomy and Astrophysics, Rice University, 2022 – present

ESO Fellow, Garching, 2021 – 2022

Rutherford International / Marie Skĺodowska-Curie Fellow (cofund)
UK Astronomy Technology Centre, 2018 – 2021

Dean B. McLaughlin Postdoctoral Fellow, University of Michigan, 2015 – 2018

EDUCATION

Ph.D. Astronomy, University of Arizona, 2015
Thesis: *Constraining the physical properties of protostellar outflows from intermediate-mass stars in feedback-dominated regions* (Advisor: Nathan Smith)

B.A. Physics and Astrophysics, University of California, Berkeley, 2007

APPROVED GRANT PROGRAMS

- NASA James Webb Space Telescope General Observer grant (GO-5408), *Diving Deeper: uncovering the full spectrum of accretion and outflow in the heart of the Carina Nebula*, $258,525
- NSF CAREER grant 2339164, *CAREER: How does external photoevaporation shape planets?* $951,446
- NASA Hubble Space Telescope Archival Research Grant (AR-15047), *Do stellar clusters form fewer binaries? Using moderate separation binaries to distinguish between nature and nurture* $168,000

APPROVED OBSERVING PROGRAMS

As Principal Investigator

- ***JWST* – NIRCam**, 70.8 hours in Cycle 3
- ***VLT* – MUSE, HAWK-I, FLAMES, ERIS**, 208 hours in service mode awarded over 8 periods; 3 nights in Period 106
- ***Magellan* – FIRE, MagE, MIKE, M2FS**, 16 nights over semesters 2012A, 2013A, 2014A, 2015B, 2016A, 2016B, 2017A, 2018A, 2018B, 2019A
- ***ALMA* – ACA stand-alone**, 18 hours for two programs in Cycle 6
- ***Gemini* – GSAOI**, 28 hours awarded for queue-mode observations in semesters 2013A, 2018A
- ***IRTF* – iSHELL**, 4 nights in 2016B
- ***APEX* – SHIFI**, $\sim$ 10 hours in 2016A

SERVICE

Community

- participated in Review Panel for Astronomy Division of the NSF in 2025
- Lead organizer, workshop at the Rice Global Paris Center "The Role of Environment in Planet Formation", 9-12 December 2024

- Space Telescope Users Committee, 2024 – 2026
- Long-term variability monitoring strategies for HST and JWST working group, 2023 – 2024
- National Radio Astronomy Observatory (NRAO; USA) Science Review Panel, 2023B – 2025A
- Hubble Space Telescope Time Allocation Committee – Cycle 27, Cycle 31
- Member of SOC and Tutor, IAA Severo Ochoa Advanced School on Star Formation, Granada, 15–19 November, 2021
- National Optical Astronomy Observatory (USA) Time Allocation Committee, 2018 – 2019

Institutional

- Graduate Admissions Committee, Rice University, 2023 – present
- Gordon Committee, Rice University, 2023 – present
- Strecker Award Committee, Rice University, 2023 – present
- Observatory Committee, Rice University, 2022 – present
- Access & Excellence Committee, Rice University, 2022 – present
- Co-organizer and science lead for UK ATC Coffee Mornings, a monthly meeting to foster discussion and interaction between scientists and engineers at the UK Astronomy Technology Centre, 2020 – 2021
- Lead facilitator, Star and Planet Formation Group, University of Michigan, 2017 – 2018
- University of Michigan Astronomy Colloquium Committee, co-chair 2016 – 2017
- Michigan Magellan/MDM Time Allocation Committee 2016A, 2016B, 2018B
- Local Organizing Committee "SPF1 – Star and Planet Formation in the Southwest", Biosphere2, Arizona, March 2015

INVITED TALKS AND PRESENTATIONS

- EAS SS30a: A Multi-scale Perspective on Stellar Feedback in the Context of Galaxy Evolution, invited review for special session "Feedback on $<$50 pc scales: individual stars and surrounding ISM", 2025
- Star Formation, Stellar Feedback, and the Ecology of Galaxies, invited talk, 2025
- University of Massachusetts, Amherst, 2025
- A Decade of Discoveries with MUSE and Beyond, invited talk, 2024
- Tinsley Scholar Colloquium, UT Austin, 2024
- Jets and Beyond Conference, invited talk, 2024
- Early Phases of Star Formation, invited review on "Feedback," 2024
- Texas Christian University, 2024
- Texas A&M University, 2022
- University of Vienna, 2022
- Institute of Radio Astronomy and Astrophysics, National Autonomous University of Mexico, 2022
- University of Leicester, 2021
- Cambridge University, 2021
- Arcetri Astrophysical Observatory, 2021
- Invited poster presentation for interdisciplinary, discussion-based UK-Chile Frontiers of Science meeting, 2021
- Rice University, 2021
- Armagh Observatory and Planetarium, 2021

- Invited review for "Threats from the surroundings: An e-workshop to discuss the importance of the environment for the evolution of protoplanetary discs and on the formation of planets" e-Workshop, 2020
- University of Leeds, 2020
- Universidad de Concepción, 2020
- University of Edinburgh, 2020
- Queen Mary University London, 2020

ADVISING AND TEACHING

Teaching

- Spring 2024, 2025: ASTR230 "Astronomy Laboratory" – observational astronomy laboratory for intended astronomy majors
- Fall 2023: ASTR101 "Stars, Galaxies, and the Universe" – introductory astronomy course for non-majors
- Spring 2023: ASTR555 "Protostars and Planets" – graduate seminar

Advising

- Supervisor of Sam Millstone (graduate student), *Quantifying Disk Destruction by External Photoevaporation in M17*, Rice University, 2024 – present
- Supervisor of Nicholas Proietti (graduate student), *Protoplanetary disk survival in typical star-forming conditions*, Rice University, 2022 – 2024
- Co-supervisor of Matthew De Furio (graduate student), *Do stellar clusters form fewer binaries? Using moderate separation binaries to distinguish between nature and nurture*, University of Michigan, 2017 – 2023

OUTREACH

- Numerous public talks for astronomy public evenings, Astronomy on Tap, for school groups, and amateur astronomy clubs including:
  - Royal Observatory, Edinburgh's Visitor Centre, 2020; video link
  - Saturday Morning Physics at the University of Michigan, 2016; youtube link
  - *Growing Pains: The Tumultuous Youth of Stars*, Steward Observatory Public Evening, 2014; click to open podcast
- Brought current research using *HST* into the classroom as a Sky Ambassador; supported development and classroom implementation of hands-on astronomy activities, led classroom lessons and supported nighttime observing programs at the Mt. Lemmon Sky Center (2014 – 2015)
- Project ASTRO Astronomer Partner for four fifth-grade classes at Los Amigos Technology Academy (2011 – 2014); led students in activities to model the solar system and moon phases

TRAINING AND LEADERSHIP

- Access & Excellence Committee, Rice University 2022 – present
- Inclusive Meetings Committee, UK Astronomy Technology Centre, 2019 – 2021
- Unconscious Bias Training, UK Astronomy Technology Centre, 2019
- Diversity, Equity and Inclusion Professional Development Certificate, emphasis in Leadership and Collaboration from the Rackham Graduate School at the University of Michigan, 2018
- Astronomy Ally (click to access webpage), 2015 – present

ALL REFEREED PUBLICATIONS

51. Chen, Z., Johnstone, D., Contreras Pena, C., Lee, J.-E., Liu, S.-Y. , Herczeg, G., Mairs, S., Park, G., Kim, K.-T., Kim, M.-R., Qiu, K., Wang, Y.-T., Zhang, X., **Reiter, M.**, and The JCMT Transient Team, *"Submillimeter and Mid-Infrared Variability of Young Stellar Objects in the M17 H II Region"* 2025, AJ, accepted

50. Planet formation environments collaboration, Allen, M., Anania, R., Andersen, M., Aru, M.-L., Ballabio, G., Ballering, N. P. Beccari, G., Berné, O., Bik, A., Boyden, R., Coleman, G., Díaz-Berrios, J., Eatson, J. W., Frediani, J., Forbrich, J., Gkimisi, K., Goicoechea, J. R., Gupta, S., Guarcello, M. G., Haworth, T. J., Henney, W. J., Isella, A., Itrich, D., Keyte, L., Kim, J. S., Kuhn, M., Le Petit, F., Luo, L., Manara, C., Maucó, K., Meshaka, R., Millstone, S., Owen, J. E., Paine, S., Parker, R., Peake, T., Peatt, M., Pinilla, P., Qiao, L., Ramírez-Tannus, M.-C., Ramsay, S., **Reiter, M.**, Rogers, C., Rosotti, G., Schroetter, I., Sellek, A., Testi, L., van Terwisga, S., Vicente, S., Walsh, C., Winter, A., Wright, N. J., Zeidler, P., *"The past, present and future of observations of externally irradiated disks"* 2025, OJA, 8, 54

49. **Reiter, M.**, McLeod, A. F., Itrich, D., & Klaassen, P. D., *"Into the Mystic: the MUSE view of the ionized gas in the Mystic Mountains in Carina"* 2025, MNRAS, 537, 3009

48. Nayak, O., Nally, C., Hirschauer, A. S., Jones, O. C., Jaspers, J., Lenkić, L., Meixner, M., Habel, N., **Reiter, M.**, Chu, L., Kavanagh, P. J., Robberto, M., & Sargent, B. A., *"Embedded Young Stellar Objects near H72.97-69.39, a forming Super Star Cluster in N79"* 2024, ApJ, 975, 262

47. Green, J. D., Pontoppidan, K. M., **Reiter, M.**, Watson, D. M., Shenoy, S. S., Manoj, P., & Narang, M., *"Why are (almost) all the protostellar outflows aligned in Serpens Main? "* 2024, ApJ, 972, 5

46. Itrich, D., Testi, T., Beccari, G., Manara, C. F., **Reiter, M.**, Preibisch, T., McLeod, A. F., Rosotti, G., Klessen, R., Molinari, S., &, Hennebelle, P., *"The population of young low-mass stars in Trumpler 14"* 2024, A&A, 685, 100

45. Nayak, O., Hirschauer, A. S., Kavanagh, P. J., Meixner, M., Chu, L., Habel, N., Jones, O. C., Lenkić, L., Nally, C., **Reiter, M.** , Robberto, M., & Sargent, B. A., *"JWST Mid-infrared Spectroscopy Resolves Gas, Dust, and Ice in Young Stellar Objects in the Large Magellanic Cloud"* 2024, ApJ, 963, 94

44. McLeod, A. F., Klaassen, P. D., **Reiter, M.**, Henshaw, J., Kuiper, R., & Ginsburg, A., *"A likely Keplerian disk feeding an optically-revealed extragalactic massive young star"* 2024, *Nature*, 625, 55

43. **Reiter, M.**, Haworth, T. J., Manara, C. F., Ramsay, S., Klaassen, P. D., Itrich, D., & McLeod, A. F., *"Illuminating evaporating protostellar outflows: ERIS/SPIFFIER reveals the dissociation and ionization of HH 900"* 2024, MNRAS, 527, 3220

42. Ramirez-Tannus, M. C., Bik, A., Cuijpers, L., Waters, R., Goppl, C., Henning, T., Kamp, I., Preibisch, T., Getman, K. V., Chaparro, G., Cuartas-Restrepo, P., de Koter, A., Feigelson, E. D., Grant, S. L., Haworth, T. J., Hernández, S., Kuhn, M. A., Perotti, G., Povich, M. S., **Reiter, M.**, Roccatagliata, V., Sabbi, E., Tabone, B., Winter, A. J., McLeod, A. F., van Boekel, R., van Terwisga, S. E. *"XUE. Molecular inventory in the inner region of an extremely irradiated Protoplanetary Disk"* 2023, ApJL, 958, 30

41. Cortes-Rangel, G., Zapata, L. A., Rivera-Ortiz, P. R., **Reiter, M.**, Takahashi, S., & Masqué, J. M., *"ALMA Observations of the Extraordinary Carina Pillars: A Complementary Sample"* 2023, ApJ, 958, 93

40. **Reiter, M.**, Klaassen, P. D., Moser-Fischer, L., McLeod, A. F., & Itrich, D., *"Into the Mystic: ALMA ACA observations of the Mystic Mountains"* 2023, MNRAS, 526, 717

39. Billi, A., Ferraro, F. R., Mucciarelli, A., Lanzoni, B., Cadelano, M., Monaco, L., Mateo, M., Bailey, J. I. III, **Reiter, M.**, & Olszewski, E. W., *"Fast rotating Blue Straggler Stars in the Globular Cluster NGC 3201"* 2023, *ApJ*, 956, 124

38. Haworth, T. J., **Reiter, M.**, Zeidler, P., O'Dell, C. R., Berne, O., Manara, C. F., Ballabio, G., Kim, J. S., Bally, J., Goicoechea, J. R., Aru, M.-L., Gupta, A., & Miotello, A., *"The VLT MUSE NFM view of outflows and externally photoevaporating discs near the Orion Bar"* 2023, MNRAS, 525, 4129

37. De Furio, M., Liu, C., Meyer, M. R., **Reiter, M.**, Kraus, A., Dupuy, T., & Monnier, J., *"Demographics of the M-star Multiple Population in the Orion Nebula Cluster"* 2022, ApJ, 941, 261

36. **Reiter, M.**, Morse, A. A., Smith, A., Haworth, T. J., Kuhn, M. A., & Klaassen, P. D., *"Deep diving off the 'Cosmic Cliffs': previously hidden jets revealed by JWST"* 2022, MNRAS, 517, 5382

35. [1]**Reiter, M.**, & Parker, R. J., *"Dynamics of young stellar clusters as planet forming environments"* 2022, invited review for EpJ+ Focus Point issue "Effects of environment and multiplicity on planet formation," 137, 1071

34. Jones, O. C., **Reiter, M.**, Sanchez-Janssen, R., Evans, C. J., Robertson, C. S., Meixner, M., & Ochsendorf, B. *"Near-infrared spectroscopy of embedded protostars in the massive metal-poor star-forming region NGC 346"* 2022, MNRAS, 517, 1518

33. De Furio, M., Meyer, M. R., **Reiter, M.**, Monnier, J., Kraus, A., & Dupuy, T., *Binary Formation in the Orion Nebula Cluster: Exploring the Substellar Limit* 2022, ApJ, 25, 112

32. Song, Y.-Y., Mateo, M., Bailey, J. I., III, Walker, M. W., Roederer, I. U., Olszewski, E. W., **Reiter, M.**, & Kremin, A., *Dynamical masses and mass-to-light ratios of resolved massive star clusters – II. Results for 26 star clusters in the Magellanic Clouds* 2021, MNRAS, 504, 4160

31. Olivier, G. M., Lopez, L. A., Rosen, A. L., Nayak, O., **Reiter, M.**, Krumholz, M. R., & Bolatto, A. D., *"Evolution of Stellar Feedback in H* II *Regions"* 2021, ApJ, 908, 68

30. Menon, S. H., Federrath, C., Klaassen, P. D., Kuiper, R. J., **Reiter, M.**, *"On the compressive nature of turbulence driven by ionising feedback in the pillars of the Carina Nebula"* 2021, MNRAS, 500, 1721

29. **Reiter, M.** *"Observational constraints on the likelihood of* ^{26}*Al in planet-forming environments"* 2020, A&A, 644, L1

28. **Reiter, M.**, Haworth, T. J., Guzmán, A. E., Klaassen, P. D., McLeod, A. F., & Garay, G., *"Illuminating a tadpole's metamorphosis III: quantifying past and present environmental impact"* 2020, MNRAS, 497, 3351

27. **Reiter, M.**, Guzmán, A. E., Haworth, T. J., Klaassen, P. D., McLeod, A. F., Garay, G., & Mottram, J. C., *"Illuminating a tadpole's metamorphosis II: observing the on-going transformation with ALMA"* 2020, MNRAS, 496, 394

26. Klaassen, P. D., **Reiter, M.**, McLeod, A. F., Mottram, J. C., & , Dale, J. E. *"Carina's Pillars of Destruction: the view from ALMA"* 2020, MNRAS, 491, 178

25. [2]De Furio, M., **Reiter, M.**, Meyer, M. R., Greenbaum, A., Dupuy, T., & Kraus, A. L. *"A Search for Intermediate-Separation Binaries in the Orion Nebula Cluster"* 2019, ApJ, 886, 95

24. **Reiter, M.**, McLeod, A. F., Klaassen, P. D., Guzmán, A. E., Dale, J. E., Mottram, J. C., & Garay, G., *"Illuminating the Tadpole's metamorphosis I: MUSE observations of a small globule in a sea of ionizing photons"* 2019, MNRAS, 490, 2056

23. Jones, O. C., Sharp, M. J., **Reiter, M.**, Hirschauer, A. S., Meixner, M., & , Srinivasan, S. *"The Young Stellar Population of the metal-poor galaxy NGC 6822"* 2019, MNRAS, 490, 832

22. **Reiter, M.**, & Parker, R. J., *"A tale of two clusters: dynamical history determines disc survival in Tr14 and Tr16 in the Carina Nebula"* 2019, MNRAS, 486, 4354

21. **Reiter, M.**, Nayak, O., Meixner, M., & Jones, O., *"Unveiling the nature of candidate high-mass young stellar objects in the Magellanic Clouds with near-IR spectroscopy"* 2019, MNRAS, 483, 5211

[1]invited review

[2]student project completed under my supervision

20. Thanathibodee, T., Calvet, N., Herczeg, G., Briceño, C., Clark, C., **Reiter, M.**, Ingleby, L., McClure, M., Maucó, K., & Hernández, J. *"The Evolution of Protoplanetary Disks: Probing the Inner Disk of Very Low Accretors"*, 2018, ApJ, 861, 73

19. McLeod, A. F., **Reiter, M.**, Kuiper, R., Klaassen, P. D., & Evans, C. J., *"A parsec-scale optical jet from a massive young star in the Large Magellanic Cloud"* 2018, *Nature*, 554, 334

18. **Reiter, M.**, Calvet, N., Thanathibodee, T., Kraus, S., Cauley, P. W., Monnier, J., Rubinstein, A., Harries, T. J., & Aarnio, A., *"Linking signatures of accretion with magnetic field measurements – line profiles are not significantly different in magnetic and non-magnetic Herbig Ae/Be stars"* 2018, ApJ, 852, 5

17. Oey, M. S., Herrera, C. N., Silich, S., **Reiter, M.**, James, B. L., Jaskot, A. E., & Micheva, G., *"Dense CO in Mrk 71-A: adiabatic feedback suppressed in a young super star cluster"* 2017, ApJL, 849, L1

16. **Reiter, M.**, Kiminki, M. M., Smith, N., & Bally, J., *"Proper motions of collimated jets from intermediate-mass protostars in the Carina Nebula"* 2017, MNRAS, 470, 4671

15. Kiminki, M. M., Smith, N., **Reiter, M.**, & Bally, J., *"Proper motions of five OB stars with candidate dusty bow shocks in the Carina Nebula"* 2017, MNRAS, 468, 2469

14. **Reiter, M.**, Kiminki, M. M., Smith, N., & Bally, J., *"The Dusty Silhouette Jet HH 1019 in the Carina Nebula"* 2017, MNRAS, 467, 4441

13. **Reiter, M.**, Smith, N., & Bally, J., *"[Fe II] jets from intermediate-mass protostars in Carina"* 2016, MNRAS, 463, 4344

12. Kiminki, M. M., **Reiter, M.**, & Smith, N., *"Ancient eruptions of Eta Carinae: A tale written in proper motions"* 2016, MNRAS, 463, 845

11. McLeod, A. F., Gritschneder, M. , Dale, J. E., Ginsburg, A., Klaassen, P. D., Mottram, J. C., Preibisch, T., Ramsay, S., **Reiter, M.**, & Testi, L., *"Connecting the dots: a correlation between ionising radiation and cloud mass-loss rate traced by optical integral field spectroscopy"* 2016, MNRAS, 426, 3537

10. **Reiter, M.**, Smith, N., Kiminki, M. K., & Bally, J., *"HH 666: Different kinematics from Hα and [Fe II] emission provide a missing link between jets and outflows"* 2015, MNRAS, 450, 564

9. **Reiter, M.**, Smith, N., Kiminki, M. K., Bally, J., & Anderson, J., *"Disentangling the outflows and protostars in HH 900 in the Carina Nebula"* 2015, MNRAS, 448, 3429

8. Hartigan, P., **Reiter, M.**, Smith, N., & Bally, J., *"A Survey of Irradiated Pillars, Globules, and Jets in the Carina Nebula"* 2015, AJ, 149, 101

7. **Reiter, M.**, Marengo, M., Hora, J., & Fazio, G., *"A Spitzer/IRAC Characterization of Galactic AGB and RSG Stars"* 2015, MNRAS, 447, 3909

6. **Reiter, M.**, & Smith, N., *"Kinematics of powerful jets from intermediate-mass protostars in the Carina nebula"* 2014, MNRAS, 445, 3939

5. Bailey, V., Meshkat, T., **Reiter, M.**, et al. *"HD 106906 b: A Planet-Mass Companion Outside a Massive Debris Disk"* 2014, ApJL, 780, 4

4. **Reiter, M.**, & Smith, N., *"HST/WFC3 imaging of protostellar jets in Carina: [Fe II] emission tracing massive jets from intermediate-mass protostars"* 2013, MNRAS, 433, 2226

3. Schenck, D. E., Shirley, Y. L., **Reiter, M.**, & Juneau, S., *"Testing the Global Star Formation relation: An HCO^+ (3-2) Mapping Study of Red MSX Sources in the Bolocam Galactic Plane Survey"* 2011, AJ, 142, 94

2. **Reiter, M.**, Shirley, Y., Wu, J., Brogan, C., Wootten, A., & Tatematsu, K., *"Evidence for Inflow in High-mass Star-forming Clumps"* 2011, ApJ, 740, 40

1. **Reiter, M.**, Shirley, Y., Wu, J., Brogan, C., Wootten, A., & Tatematsu, K., *"The Physical Properties of High-Mass Star-forming Clumps: A Systematic Comparison of Molecular Tracers"* 2011, ApJS, 195, 1

NON-REFEREED PUBLICATIONS

4. Jha, S. W., Casetti-Dinescu, D. I., Bernstein, G. M., Hayes, M. J., Oskinova, L. M., Pace, A. B., Quimby, R. M., **Reiter, M.**, Rest, A., Riess, A. G., Sand, D. J., & Weisz, D. R., *"HST/JWST Long-Term Monitoring Working Group Final Report"* 2024, arXiv link

3. Kiminki, M. M., **Reiter, M.**, & Smith, N., *"Proper Motions of η Carinae's Outer Ejecta and Its Eruptive History"* 2017, IAUS, 329, 413

2. **Reiter, M.**, *"Tracing Massive Protostellar Jets from Intermediate-Mass Protostars in the Carina Nebula"* 2014, Proceedings from Guillermo Haro Conference, pgs 17-20

1. Marengo, M., **Reiter, M.**, & Fazio, G., *"Spitzer/IRAC Observations of AGB stars"* 2008, AIPC, 1001, 331