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Dr. Aaron C. Rizzuto

References

- A. Prof. Michael Ireland, Australian National University (michael.ireland@anu.edu.au)
Prof. Adam Kraus, University of Texas at Austin (alk@astro.as.utexas.edu)
A. Prof. Andrew Mann, University of North Carolina at Chapel Hill (awmann@unc.edu)

Education

- 2011–2014 **Ph.D, Astronomy & Astrophysics**, *Department of Astronomy*, Macquarie University.
THESIS *Characterising the Young Sco-Cen Association*
ADVISORS A. Prof. Michael Ireland, Dr. Daniel Zucker
- 2010–2011 **B.Sc., Honours Class 1 in Physics**, *Sydney Institute for Astronomy*, University of Sydney.
THESIS *The Membership and Multiplicity of Sco OB2*
ADVISORS A. Prof. Michael Ireland, Prof. Peter Tuthill, Dr. Gordon Robertson
- 2007–2009 **B.Sc. (Advanced), Physics & Mathematics**, University of Sydney.

Employment

- June 2018– **51 Pegasi b Prize Postdoctoral Fellow**, *Department of Astronomy*, The University of Texas at Austin.
ADVISOR A. Prof. Adam Kraus
- 2016–2018 **Postdoctoral Fellow**, *Department of Astronomy*, The University of Texas at Austin.
ADVISOR A. Prof. Adam Kraus
- 2011–2013 Physics Laboratory TA, Macquarie University
2011–2013 1st year Astronomy Marking, Macquarie University

Telescope Time and Grants Received

Since 2015, I received ~\$1.3M AUD in research funding as a postdoctoral researcher.

- 2019 **NASA Keck 2019B**, 1 night, \$14,000 (PI)
Dynamical Masses of Young Stars with Non-Redundant Masking
- 2019 **NASA Keck 2019A**, 1 night, \$14,000 (Co-PI)
Testing the Kozai-Lidov Mechanism for Planet Migration with Non-Redundant Masking
- 2018 **51 Pegasi B Fellowship**, \$375,000 (PI)
Planet Formation and Evolution Using Young Populations
- 2018 **TESS GO Cycle 1**, 1000 targets, \$100,000 (PI)

- Star and Planet Evolution at 10-20 Myr After Formation*
- 2018-2019 **LCO:NRES** 200 hours (PI)
The Cluster Birth Environment
- 2017 **NASA Astrophysics Data Analysis Program**, \$282,000 (PI)
The Exoplanet Migration Timescale from K2 Young Clusters
- 2017 **NASA Keck 2017B**, 0.5 nights, (PI)
Testing the Binary Trigger Formation Hypothesis for FUors
- 2017 **NASA Keck 2017B**, 1 night, \$14,000 (Co-PI)
Testing the Kozai-Lidov Mechanism for Planet Migration with Non-Redundant Masking
- 2017 **Kepler K2CG Cycle 5**, 500 targets, \$50,000 (PI)
Star and Planet Evolution at 10-20 Myr After Formation
- 2016-2017 **Texas Advanced Computing Center**, Lonestar5 500,000 core hours (PI)
The Exoplanet Migration Timescale from K2 Young Clusters
- 2017 **Texas Advanced Computing Center**, Lonestar5, 50,000 core hours (PI)
Bayesian Cluster Identification with Galactic Traceback
- 2016 **NASA Spitzer Space Telescope**, 106 hours (CoI)
Zodiacal Exoplanets in Time (ZEIT): Are These Worlds Flat?
- 2016 **Kepler K2GO Cycle 4**, 500 targets, \$50,000 (PI)
Planet Formation and Fundamental Stellar Parameters at the Early Stages of Stellar Evolution
- 2016 **Kepler K2GO Cycle 4**, 200 targets, \$40,000 (CoI)
Zodiacal Exoplanets in Time (ZEIT): The Hyades Cluster
- 2016 **NASA Keck 2016B**, 1 night, \$15,000 (CoI)
Zodiacal Exoplanets in Time (ZEIT): The AO follow-up Program
- 2016 **Gemini:GPI sparse aperture masking**, 30.4 hours (CoI)
The Planetary Systems of Young Massive Stars
- 2015-2017 **NASA Keck Long Term Program**, 4 nights over 2 years, \$60,000 (Science-PI)
Calibrating Young Stellar Models with Dynamical Masses in the Gaia Era
- 2016-2018 UT 2.7 m, Coude Spectrograph, 24 nights (PI)
- 2015-2016 UT 2.7 m, IGRINS Spectrograph, 5 nights (PI)
- 2015 UT 2.1 m, SES Spectrograph, 6 nights (PI)
- 2013-2015 ANU 2.1 m, WiFeS Spectrograph, 12 nights (PI)

Teaching Experience

- 2019- **Attended ISEE PDP, UC Santa Cruz.**
Institute for Scientist and Engineer Educators professional development program. A flexible workshop designed to teach scientists how to create inquiry-based learning experiences for students.
- 2019- **Advisor for undergraduate research student (Nolan Elauria), UT Austin.**
Project: Autonomous Rotation Period Measurements of Young Stars with Kepler
- 2019- **Advisor for undergraduate research student (Samantha Anger), UT Austin.**
Project: Identifying Single Transit Events in Kepler K2 Data of Young Stars
- 2018- **Advisor for undergraduate research student (Jordyn Mascarenas-Wells), UT Austin.**
Project: Identifying New Young Stars in Gaia DR2
- 2017- **Guest lecture on the Solar birth cluster (undergrad), UT Austin.**

- 2017– **Guest lecture on transit search and planet migration in young systems (undergrad and grad.)**, *UT Austin*.
- 2017– **Co-advisor for Graduate student (Daniel Krolikowsky)**, *UT Austin*.
Project: A Spectroscopic Survey of the Taurus-Auriga Star-Forming Complex
- 2016 **Co-advisor for undergraduate research student (Jennifer Medina)**, *UT Austin*.
Project: Misalignment of K2 cluster planets from spectroscopy and rotation periods
- 2016 **Co-advisor for undergraduate research student (Saki Kamon)**, *UT Austin*.
Project: Follow up of directly-imaged young exoplanets
- 2016 **Co-advisor for Honours Student (Yi Jian Ching)**, *The University of Sydney*.
Project: Milli-arcsecond scattering around T Tauris: the halos of the newest solar systems
- 2013 **Astronomy department technical seminar on Bayesian statistics**, *Macquarie University*.
- 2011–2013 **Laboratory Demonstrator (physics)**, *Macquarie University*.
- 2005–2009 **Private Music Teacher**, *Self employed*.

Awards

- 2012 **Macquarie University Postgraduate Research Fund (\$5000)**, Macquarie University.
- 2011–2014 **Australian Postgraduate Award (\$77000)**, Macquarie University.
- 2010 **School of Physics Honours Scholarship (\$3000)**, University of Sydney.
- 2009 **Summer Vacation Scholarship in Astrophysics (\$3000)**, University of Sydney.
- 2008 **Summer Vacation Scholarship in Astrophysics (\$3000)**, University of Sydney.

Public Outreach

- Nov 2016 **Special Viewing Night Talk**, *McDonald Observatory*.
Moving the Planets
- 2015–2016 **Ask An Astronomer**, *University of Texas at Austin*.
Answer community question on an online platform (askanastronomer.org).
- 2013 **Physics Department Career Information Night**, *Macquarie University*.
Gave a seminar to high school and undergraduate students describing working as an astronomer
- 2011–2014 **Astronomy Viewing Night Demonstrator**, *Macquarie University*.
Operated several telescopes and provided information/answered questions for members of the public.

Professional Service

- 2019 NSF grant panelist on cool stars.
- 2018 NASA Exoplanets Research Program Panelist.
- 2017– Bash Symposium 2017 conference chair
- 2015– External Referee for CANTAC, CFHT committee.
- 2013– Referee for ApJ, MNRAS, ApJL, A&A
- 2013–2014 Disciplinary Committee Member, Macquarie University
- 2014– Member of the American Astronomical Society

Presentations

- 2020 **AAS Annual Meeting**, *Honolulu*.
Talk: *A Transiting Hot Jupiter in the Sco-Cen Association*
- 2019 **51 Pegasi b Symposium**, *San Francisco*.
Talk: *A Transiting Hot Jupiter in the Sco-Cen Association*

- 2019 **Kepler Science Conference**, Glendale.
Talk: *The Exoplanet Migration Timescale from K2 Young Clusters*
- 2019 **AAS Annual Meeting**, Seattle.
Talk: *The Exoplanet Migration Timescale from K2 Young Clusters*
- 2018 **GMT Science Meeting**, Honolulu.
Talk: *Dynamical Masses of Young Binary Stars*
- 2018 **51 Pegasi b Symposium**, San Francisco.
Talk: *The Exoplanet Migration Timescale from K2 Young Clusters*
- 2017 **AAS 229**, Grapevine.
Talk: *The Exoplanet Migration Timescale from K2 Young Clusters*
- 2016 **Keck Science Meeting**, Caltech.
Talk: *Dynamical Masses of Young Stars with Keck Aperture Masking*
- 2016 **Cool Stars 19**, Upsala, Sweden.
Poster: *Calibrating Young Stellar Models With Dynamical Masses in the Gaia Era*
- 2016 **Invited Astronomy Colloquium**, Anglo-Australian Observatory.
Calibrating Star and Planet Evolution with Young Groups of Stars
- 2016 **Astronomy Colloquium**, Sydney Institute for Astronomy.
Calibrating Star and Planet Evolution with Young Groups of Stars
- 2016 **Astronomy Colloquium**, Australian National University (RSAA).
Calibrating Star and Planet Evolution with Young Groups of Stars
- 2016 **Astronomy Colloquium**, University of Rochester.
Calibrating Star Formation and Stellar Models with Young Binary Stars
- 2016 **Astronomy Colloquium**, American Museum of Natural History.
Calibrating Star Formation and Stellar Models with Young Binary Stars
- 2016 **Stellar Activity Meeting**, Columbia University.
Talk: *Young Clusters with Gaia*
- 2015 **K2SciCon**, Santa Barbara, CA.
Poster: *Young Star Science with K2: Upper Scorpius*
- 2015 **Keck Science Meeting**, UCLA.
Poster: *Dynamical Masses Demonstrate the Discordant Model Ages for Upper Scorpius*
- 2013 **Astronomical Society of Australia Annual Meeting**, Melbourne, Australia.
Talk: *The Membership and Multiplicity of Sco-Cen*
- 2013 **Physics Department Seminar**, Macquarie University.
Age Dating the Sco-Cen Association
- 2012 **Cool Stars 17**, Barcelona, Spain.
Poster: *Identifying Young, Nearby Low-Mass Stars*
- 2012 **Astronomy Department Seminar**, University of Exeter, England.
New Companions to B-type Stars in Sco-Cen
- 2011 **Astronomical Society of Australia Annual Meeting**, Adelaide, Australia.
Talk: *SUSI Multiplicity Survey of Sco-Cen*

Refereed Publications

41. *Dynamical Masses of Young Stars II: Young Taurus Binaries FF Tau, Hubble 4 and HP Tau/G3*
Rizzuto, A. C., Dupuy, T. J., Kraus, A. L., Ireland M. J., ApJ in press
40. *Tiny grains shining bright in the gaps of Herbig Ae transitional discs*
Birchall, E. K., Ireland, M. J., Federrath, C., Monnier, J. D., Kraus, S., Willson, M., Kraus, A. L., **Rizzuto, A. C.**, Agnew, M. T., Maddison, S. T., 2019, MNRAS, 486, 3721B
39. *TESS Hunt for Young and Maturing Exoplanets (THYME): A Planet in the 45 Myr Tucana-Horologium Association*
Newton, E. R., Mann, A. W., Tofflemire, B. M., Pearce, L., **Rizzuto, A. C.**, 2019, ApJ, 880L, 17N
38. *A super-Earth and sub-Neptune transiting the late-type M dwarf LP 791-18*
Crossfield, I. J. M., Waalkes, W., Newton, E. R., et al., 2019, ApJ, in press
37. *The Effect of Binarity on Circumstellar Disk Evolution*
Barenfeld, S. A., Carpenter, J. M., Sargent, A. I., **Rizzuto, A. C.**, Kraus, A. L., Meshkat, T., Akeson, R. L., Jensen, E. L. N., Hinkley, S., 2019, ApJ, 878, 45B
36. *Close Companions around Young Stars*
Kounkel, M., Covey, K., Moe, M., Kratter, K. M., Suarez, G., Stassun, K. G., Roman-Zuniga, C., Hernandez, J., Kim, J. S., Pena Ramirez, K., Roman-Lopes, A., Stringfellow, G. S., Jaehnig, K. O., Borissova, J., Tofflemire, B., Krolikowski, D., **Rizzuto, A. C.**, et al., 2019, AJ, 157, 196K
35. *Orbital Motion of the Wide Planetary-mass Companion GSC 6214-210 b: No Evidence for Dynamical Scattering*
Pearce, Logan A., Kraus, Adam L., Dupuy, Trent J., Ireland, Michael J., **Rizzuto, Aaron C.**, et. al., 2019, ApJ, 157, 71p
34. *How to Constrain Your M dwarf II: the mass-luminosity-metallicity relation from 0.075 to 0.70M_⊙*
Mann, A. W., Dupuy, T., Kraus, A. L., Gaidos, E., Ansdell, M., Ireland, M., **Rizzuto, A. C.**, Hung, C., Dittmann, J., Factor, S., Feiden, G., Martinez, R. A., Ruiz-Rodriguez, D., Chia Thao, P., 2018 ApJ, in press.
33. *Imaging the disc rim and a moving close-in companion candidate in the pre-transitional disc of V1247 Orionis*
Willson, M., Kraus, S., Kluska, J., Monnier, J. D., Cure, M., Sitko, M., Aarnio, A., Ireland, M. J., **Rizzuto, A. C.**, Hone, E., Kreplin, A., Andrews, S., Calvet, N., Espaillat, C., Fukagawa, M., Harries, T. J., Hinkley, S., Kanaan, S., Muto, T., Wilner, D., 2018 A&A, in press.
32. *Multiplicity of disc-bearing stars in Upper Scorpius and Upper Centaurus-Lupus*
Kuruwita, R. L., Ireland, M. J., **Rizzuto, A. C.**, Bento, J., Federrath, C., 2018, MNRAS, 480, 5099K
31. *Zodiacal Exoplanets in Time (ZEIT). VIII. A Two-planet System in Praesepe from K2 Campaign 16*
Rizzuto, A. C., Vanderburg, A., Mann, A. W., Kraus, A. L., Dressing, C. D., Agueros, M. A., Douglas, S. T., Krolikowski, D. M., 2018, AJ, 156, 195R
30. *Eclipsing Binaries in the Open Cluster Ruprecht 147. I. EPIC 219394517*

- Torres, G., Curtis, J. L., Vanderburg, A., Kraus, A. L., **Rizzuto, A. C.**, 2018, ApJ, 866, 67T
29. *Zodiacal Exoplanets in Time (ZEIT). VII. A Temperate Candidate Super-Earth in the Hyades Cluster*
Vanderburg, A., Mann, A. W., **Rizzuto, A. C.**, Bieryla, A., Kraus, A. L., Berlind, P., Calkins, M. L., Curtis, J. L., Douglas, S. T., Esquerdo, G. A., 2018, AJ, 156, 46V
28. *K2-231 b: A Sub-Neptune Exoplanet Transiting a Solar Twin in Ruprecht 147*
Curtis, J. L., Vanderburg, A., Torres, G., Kraus, A. L., Huber, D., Mann, A. W., **Rizzuto, A. C.**, Isaacson, H., Howard, A. W., Henze, C. E., Fulton, B. J., Wright, J. T., 2018, AJ, 155, 173C
27. *Zodiacal Exoplanets in Time (ZEIT) VI: a three-planet system in the Hyades cluster including an Earth-sized planet*
Mann, A. W., Vanderburg, A., **Rizzuto, A. C.**, Kraus, A. L., Berlind, P., Bieryla, A., Calkins, M. L., Esquerdo, G. A., Latham, D. W., Mace, G. N., Morris, N. R., Quinn, S. N., Sokal, K. R., Stefanik, R. P., 2018, AJ, 154, 4M
26. *Likely Transiting Exocomets Detected by Kepler*
Rappaport, S., Vanderburg, A., Jacobs, T., Lacourse, D., Jenkins, J., Kraus, A. L., **Rizzuto, A. C.**, Latham, D. W., Bieryla, A., Lazarevic, M., Schmitt, A., MNRAS, 2018, 474, 1453R
25. *Zodiacal Exoplanets in Time (ZEIT) V: A Uniform Search for Transiting Planets in Young Clusters Observed by K2*
Rizzuto, A. C., Mann, A. W., Vanderburg, A., Kraus, A. L., Covey, K., 2017, AJ, 143, 224R
24. *The Young Substellar Companion ROXs 12 B: Near-Infrared Spectrum, System Architecture, and Spin-Orbit Misalignment*
Bowler, B., Kraus, A. L., Bryan, M., Knutson, H., Brogi, M., **Rizzuto, A. C.**, Mace, G., Vanderburg, A., Liu, M., Hillenbrand, L., Cieza, L., 2017, AJ, 154, 165B
23. *Dippers and Dusty Disks Edges: New diagnostics and comparison to model predictions*
Bodman, E. H., Quillen, A. C., Ansdell, M., Hippke, M., Boyajian, T. S., Mamajek, E. E., Blackman, E. G., **Rizzuto, A. C.**, Kastner, J. H. 2017, MNRAS, 470, 202B
22. *The Factory and the Beehive. III. PTFEB132.707+19.810, A Low-mass Eclipsing Binary in Praesepe Observed by PTF and K2*
Kraus, A. L., Douglas, S. T., Mann, A. W., Agueros, M. A., Law, N. M., Covey, K. R., Feiden, G. A., **Rizzuto, A. C.**, Howard, A. W., Isaacson, H., Gaidos, E., Torres, G., Bakos, G. 2017, ApJ, 845, 72K
21. *The First Scattered-light Image of the Debris Disk around the Sco-Cen Target HD 129590*
Matthews, E., Hinkley, S., Vigan, A., Kennedy, G., **Rizzuto, A. C.**, Stapelfeldt, K., Mawet, D., Booth, M., Chen, C., Jang-Condell, H. 2017, ApJ, 843L, 12M
20. *Age Spreads and the Temperature Dependence of Age Estimates in Upper Sco*
Fang, Q., Herczeg, G. J., **Rizzuto, A. C.** 2017, ApJ, 842, 123F
19. *The Greater Taurus-Auriga Ecosystem. I. There is a Distributed Older Population*

- Kraus, A. L., Herczeg, G. J., **Rizzuto, A. C.**, Mann, A. W., Slesnick, C. L., Carpenter, J. M., Hillenbrand, L. A., Mamajek, E. E. 2017, ApJ, 838, 150K
18. *Zodiacal Exoplanets in Time (ZEIT). IV. Seven Transiting Planets in the Praesepe Cluster*
Mann, A. W., Gaidos, E., Vanderburg, A., **Rizzuto, A. C.**, Ansdell, M., Medina, J. V., Mace, G. N., Kraus, A. L., Sokal, K. R. 2017, AJ, 153, 64M
17. *TYC 8241 2652 1 and the case of the disappearing disk: No smoking gun yet*
GÄijnther, H. M., Kraus, S., Melis, C., CurE, M., Harries, T., Ireland, M. J., Kanaan, S., Poppenhaeger, K., **Rizzuto, A. C.**, Rodriguez, D., Schneider, C. P., Sitko, M., Weigelt, G., Willson, M., Wolk, S. 2017, A&A, 598A, 82G
16. *Zodiacal exoplanets in time (ZEIT) - II. A ‘super-Earth’ orbiting a young K dwarf in the Pleiades Neighbourhood*
Gaidos, E., Mann, A. W., **Rizzuto, A. C.**, Nofi, L., Mace, G., Vanderburg, A., Feiden, G., Narita, N., Takeda, Y., Esposito, T. M., De Rosa, R. J., Ansdell, M., Hirano, T., Graham, J. R., Kraus, A., Jaffe, D. 2017, MNRAS, 464, 850G
15. *Testing the Binary Trigger Hypothesis in FUors*
Green, J. D., Kraus, A. L., **Rizzuto, A. C.**, Ireland, M. J., Dupuy, T. J., Mann, A. W., Kuruwita, G. 2016, ApJ, 830, 29G
14. *Zodiacal Exoplanets in Time (ZEIT). III. A Short-period Planet Orbiting a Pre-main-sequence Star in the Upper Scorpius OB Association*
Mann, A. W., Newton, E. R., **Rizzuto, A. C.**, Irwin, J., Feiden, G. A., Gaidos, E., Mace, G. N., Kraus, A. L., James, D. J., Ansdell, M., Charbonneau, D., Covey, K. R., Ireland, M. J., Jaffe, D. T., Johnson, M. C., Kidder, B., Vanderburg, A. 2016, AJ, 152, 61M
13. *High-precision Radio and Infrared Astrometry of LSPM J1314+1320AB. II. Testing Pre-main-sequence Models at the Lithium Depletion Boundary with Dynamical Masses*
Dupuy, T. J., Forbrich, J., **Rizzuto, A. C.**, Mann, A. W., Aller, K., Liu, M. C., Kraus, A. L., Berger, E. 2016, ApJ, 827, 23D
12. *High-precision Radio and Infrared Astrometry of LSPM J1314+1320AB. I. Parallax, Proper Motions, and Limits on Planets*
Forbrich, J., Dupuy, T. J., Reid, M. J., Berger, E., **Rizzuto, A. C.**, Mann, A. W., Liu, M. C., Aller, K., Kraus, A. L. 2016, ApJ, 827, 22F
11. *Dynamical Masses of Young Stars. I. Discordant Model Ages of Upper Scorpius*
Rizzuto, A. C., Ireland, M. J., Dupuy, T. J., Kraus, A. L. 2016, ApJ, 817, 164R
10. *Mapping the Shores of the Brown Dwarf Desert. IV. Ophiuchus*
Cheetham, A. C., Kraus, A. L., Ireland, M. J., Cieza, L., **Rizzuto, A. C.**, Tuthill, P. G. 2015, ApJ, 813, 83C
9. *The Mass-Radius Relation of Young Stars. I. USco 5, an M4.5 Eclipsing Binary in Upper Scorpius Observed by K2*
Kraus, A. L., Cody, A. M., Covey, K. R., **Rizzuto, A. C.**, Mann, A. W., Ireland, M. J. 2015, ApJ, 807, 3K
8. *New pre-main-sequence stars in the Upper Scorpius subgroup of Sco-Cen*
Rizzuto, A. C., Ireland, M. J., Kraus, A. L. 2015, MNRAS, 488, 2737R

7. *RHEA: the ultra-compact replicable high-resolution exoplanet and Asteroseismology spectrograph*
Feger, T., Bacigalupo, C., Bedding, T. R., Bento, J., Coutts, D. W., Ireland, M. J., Parker, Q. A., **Rizzuto, A. C.**, Spaleniak, I. 2014, SPIE, 9147E, 7IF
6. *Alternative approach to precision narrow-angle astrometry for Antarctic long baseline interferometry*
Kok, Y., Ireland, M. J., **Rizzuto, A. C.**, Tuthill, P. G., Robertson, J. G., Warrington, B. A., Tango, W. J. 2014, SPIE, 9146E, 2RK
5. *Long-baseline interferometric multiplicity survey of the Sco-Cen OB association*
Rizzuto, A. C., Ireland, M. J., Robertson, J. G., Kok, Y., Tuthill, P. G., Warrington, B. A., Haubois, X., Tango, W. J., Norris, B., ten Brummelaar, T., Kraus, A. L., Jacob, A., Laliberte-Houdeville, C. 2013, MNRAS, 436, 1694R
4. *Phase-Referenced Interferometry and Narrow-Angle Astrometry with SUSI*
Kok, Y., Ireland, M. J., Tuthill, P. G., Robertson, J. G., Warrington, B. A., **Rizzuto, A. C.**, Tango, W. J. 2013, JAI, 240011K
3. *Science and technology progress at the Sydney University Stellar Interferometer*
Robertson, J. G., Ireland, M. J., Tango, W. J., Tuthill, P. G., Warrington, B. A., Kok, Y., **Rizzuto, A. C.**, Cheetham, A., Jacob, A. P. 2012, SPIE, 8455E, 0NR
2. *WISE circumstellar discs in the young Sco-Cen association*
Rizzuto, A. C., Ireland, M. J., Zucker, D. B. 2012, MNRAS, 421L, 97R
1. *Multidimensional Bayesian membership analysis of the Sco OB2 moving group*
Rizzuto, A. C., Ireland, M. J., Robertson, J. G. 2011, MNRAS, 416, 3108R