Curriculum Vita

May 2026

Instructor: Billy Quarles, Assistant Professor
Academic Department: Physics & Astronomy

University Address: Department of Physics & Astronomy
McFarland Science Building
East Texas A&M University
PO Box 3011
Commerce, TX 75429-3011
Office Phone: 903.886.5488
University Email Address: billy.quarles@etamu.edu
Faculty Web Page Address: www.billyquarles.com

EDUCATION

- PhD in Physics & Applied Physics, *University of Texas at Arlington*, 2012
- MS in Physics, *Stephen F. Austin State University*, 2008
- BS in Physics & Astronomy, *Texas Christian University*, 2006

TEACHING EXPERIENCE

- Aug 2024 – Present, *Assistant Professor*, *East Texas A&M University*
- Aug 2021 – May 2024, *Assistant Professor*, *Valdosta State University*
- Aug 2020, *Guest Lecturer*, *Georgia Institute of Technology*
- Aug 2015 – May 2016, *Visiting Assistant Professor*, *University of Nebraska at Kearney*
- Sept 2012 – Dec 2012, *Astronomy Lab Supervisor*, *University of Texas at Arlington*
- Jan 2009 – Aug 2012, *Graduate Teaching Assistant*, *University of Texas at Arlington*
- Aug 2010 – Dec 2010, *Astronomy Lecturer*, *University of Texas at Arlington*
- Aug 2006 – May 2008, *Graduate Teaching Assistant*, *Stephen F. Austin State University*

RESEARCH GRANTS AND AWARDS

- 2024–2027, *REU Site: Summer research program for community college and liberal arts college students in Physics and Astronomy (Co-I)*, *NSF*, $334,724
- 2022–2024, *Discovering Circumbinary Planets with TESS (Co-I)*, *NASA TESS GO Cycle 4*, $70,000
- 2022–2024, *Searching Our Closest Stellar Neighbor for Planets and Zodiacal Emission (Collaborator)*, *JWST GO Cycle 1*
- 2020–2022, *Debris Disk Morphology due to Stellar Encounters (Co-I)*, *NASA Astrophysics Theory Program*, $523,145
- 2019–2020, *Tidal Obliquity Variations of Potentially Habitable Planets (Co-I)*, *NASA Habitable Worlds*, $211,098

PUBLICATIONS

1. H. G. Bhaskar, N. W. H. Moore, J. Gao, G. Li, et al. “Main-sequence systems: Orbital stability around single star hosts”. *Encyclopedia of Astrophysics, Volume 1*. **1**. 2026, pp. 482–492. DOI:10.1016/B978-0-443-21439-4.00015-8.

2. A. Briseño, B. Quarles, and M. Rosario-Franco. “Tidal evolution of packed moon systems around an Earth-mass planet”, arXiv:2607.14323 (2026). DOI:10.48550/arXiv.2607.14323.

3. S. D. Patel, B. Quarles, N. N. Weinberg, and M. Cuntz. “Tidally Torn: Why the Most Common Stars May Lack Large, Habitable-zone Moons”. **AJ** 171.1, 11 (2026), p. 11. DOI:10.3847/1538-3881/ae1b8c.

4. B. Quarles, H. G. Bhaskar, and G. Li. “Main-sequence systems: Orbital stability in stellar binaries”. *Encyclopedia of Astrophysics, Volume 1*. **1**. 2026, pp. 493–509. DOI:10.1016/B978-0-443-21439-4.00016-X.

5. C. Beichman, A. Sanghi, D. Mawet, P. Kervella, et al. “Worlds Next Door: A Candidate Giant Planet Imaged in the Habitable Zone of α Centauri A. I. Observations, Orbital and Physical Properties, and Exozodi Upper Limits”. **ApJL** 989.2, L22 (2025), p. L22. DOI:10.3847/2041-8213/adf53f.

6. D. Kipping, A. Teachey, D. A. Yahalomi, B. Cassese, et al. “Concerning the possible exomoons around Kepler-1625 b and Kepler-1708 b”. **Nature Astronomy** 9 (2025), pp. 795–798. DOI:10.1038/s41550-025-02547-1.

7. S. D. Patel, B. Quarles, and M. Cuntz. “Orbital stability of hierarchical three- and four-body systems with inclination: results for Kepler-1625, 1708, and HD 23079”. **MNRAS** 537.3 (2025), pp. 2291–2302. DOI:10.1093/mnras/staf131.

8. S. D. Patel, B. Quarles, M. Cuntz, and N. N. Weinberg. “Can Moons Exist around the Habitable-zone Planet K2-18b?” **MNRAS** 542 (2025), p. L144. DOI:10.1093/mnrasl/slaf077.

9. A. Sanghi, C. Beichman, D. Mawet, W. O. Balmer, et al. “A Preliminary Search for Planets and Exozodiacal Emission Around α Centauri A with JWST/MIRI”. **Research Notes of the American Astronomical Society** 9.5, 119 (2025), p. 119. DOI:10.3847/2515-5172/add880.

10. K. Wagner, E. Douglas, S. Ertel, K. Grattan, et al. “Astrometric Methods for Detecting Exomoons Orbiting Imaged Exoplanets: Prospects for Detecting Moons Orbiting a Giant Planet in α Centauri A’s Habitable Zone”. **ApJL** 991.2, L44 (2025), p. L44. DOI:10.3847/2041-8213/ae0741.

11. N. A. Kaib, A. Parsells, S. Grimm, B. Quarles, et al. “More realistic planetesimal masses alter Kuiper belt formation models and add stochasticity”. **Icarus** 415, 116057 (2024), p. 116057. DOI:10.1016/j.icarus.2024.116057.

12. D. Kipping, A. Teachey, D. A. Yahalomi, B. Cassese, et al. “A Reply to: Large Exomoons unlikely around Kepler-1625 b and Kepler-1708 b”, arXiv:2401.10333 (2024). DOI:10.48550/arXiv.2401.10333.

13. S. Adelbert, A. B. T. Penzlin, C. M. Schäfer, W. Kley, et al. “Stability of coorbital planets around binaries”. **A&A** 680, A29 (2023), A29. DOI:10.1051/0004-6361/202244329.

14. M. El Moutamid, K. B. Stevenson, B. Quarles, N. K. Lewis, et al. “Mass derivation of planets K2-21b and K2-21c from transit timing variations”. **MNRAS** 520.3 (2023), pp. 4226–4234. DOI:10.1093/mnras/stad238.

15. J. M. Jackson, R. I. Dawson, B. Quarles, and J. Dong. “Statistical Analysis of the Dearth of Super-eccentric Jupiters in the Kepler Sample”. **AJ** 165.3, 82 (2023), p. 82. DOI:10.3847/1538-3881/acac86.

16. M. S. Clement, E. V. Quintana, and B. Quarles. “Habitable Planet Formation around Low-mass Stars: Rapid Accretion, Rapid Debris Removal, and the Essential Contribution of External Giants”. **ApJ** 928.1, 91 (2022), p. 91. DOI:10.3847/1538-4357/ac549e.

17. D. Kipping, S. Bryson, C. Burke, J. Christiansen, et al. “An exomoon survey of 70 cool giant exoplanets and the new candidate Kepler-1708 b-i”. **Nature Astronomy** 6 (2022), pp. 367–380. DOI:10.1038/s41550-021-01539-1.

18. B. Quarles, G. Li, and J. J. Lissauer. “Milankovitch cycles for a circumstellar Earth-analogue within α Centauri-like binaries”. **MNRAS** 509.2 (2022), pp. 2736–2757. DOI:10.1093/mnras/stab3179.

19. S. Satyal, B. Quarles, and M. Rosario-Franco. “Moon packing around an Earth-mass planet”. **MNRAS** 516.1 (2022), pp. 39–52. DOI:10.1093/mnras/stac2172.

20. J. Dong, C. X. Huang, R. I. Dawson, D. Foreman-Mackey, et al. “Warm Jupiters in TESS Full-frame Images: A Catalog and Observed Eccentricity Distribution for Year 1”. **ApJS** 255.1, 6 (2021), p. 6. DOI:10.3847/1538-4365/abf73c.

21. O. Jagtap, B. Quarles, and M. Cuntz. “Updated studies on exomoons in the HD 23079 system”. **PASA** 38, e059 (2021), e059. DOI:10.1017/pasa.2021.52.

22. V. B. Kostov, B. P. Powell, J. A. Orosz, W. F. Welsh, et al. “TIC 172900988: A Transiting Circumbinary Planet Detected in One Sector of TESS Data”. **AJ** 162.6, 234 (2021), p. 234. DOI:10.3847/1538-3881/ac223a.

23. S. M. Kreyche, J. W. Barnes, B. Quarles, and J. E. Chambers. “Exploring Tidal Obliquity Variations with SMERCURY-T”. **PSJ** 2.5, 187 (2021), p. 187. DOI:10.3847/PSJ/ac1ce6.

24. B. Quarles, S. Eggl, M. Rosario-Franco, and G. Li. “Exomoons in Systems with a Strong Perturber: Applications to α Cen AB”. **AJ** 162.2, 58 (2021), p. 58. DOI:10.3847/1538-3881/ac042a.

25. C. Beichman, M. Ygouf, J. Llop Sayson, D. Mawet, et al. “Searching for Planets Orbiting α Cen A with the James Webb Space Telescope”. **PASP** 132.1007, 015002 (2020), p. 015002. DOI:10.1088/1538-3873/ab5066.

26. V. B. Kostov, J. A. Orosz, A. D. Feinstein, W. F. Welsh, et al. “TOI-1338: TESS’ First Transiting Circumbinary Planet”. **AJ** 159.6, 253 (2020), p. 253. DOI:10.3847/1538-3881/ab8a48.

27. V. B. Kostov, W. F. Welsh, N. Haghighipour, B. Quarles, et al. “Multiple Transits during a Single Conjunction: Identifying Transiting Circumbinary Planetary Candidates from TESS”. **AJ** 160.4, 174 (2020), p. 174. DOI:10.3847/1538-3881/abad40.

28. S. M. Kreyche, J. W. Barnes, B. Quarles, J. J. Lissauer, et al. “Retrograde-rotating Exoplanets Experience Obliquity Excitations in an Eccentricity-enabled Resonance”. **PSJ** 1.1, 8 (2020), p. 8. DOI:10.3847/PSJ/ab8198.

29. R. G. Martin, J. J. Lissauer, and B. Quarles. “Evolution of α Centauri b’s protoplanetary disc”. **MNRAS** 496.2 (2020), pp. 2436–2447. DOI:10.1093/mnras/staa1674.

30. B. Quarles, J. W. Barnes, J. J. Lissauer, and J. Chambers. “Obliquity Evolution of the Potentially Habitable Exoplanet Kepler-62f”. **Astrobiology** 20.1 (2020), pp. 73–90. DOI:10.1089/ast.2018.1932.

31. B. Quarles, G. Li, V. Kostov, and N. Haghighipour. “Orbital Stability of Circumstellar Planets in Binary Systems”. **AJ** 159.3, 80 (2020), p. 80. DOI:10.3847/1538-3881/ab64fa.

32. B. Quarles, G. Li, and M. Rosario-Franco. “Application of Orbital Stability and Tidal Migration Constraints for Exomoon Candidates”. **ApJL** 902.1, L20 (2020), p. L20. DOI:10.3847/2041-8213/abba36.

33. M. Rosario-Franco, B. Quarles, Z. E. Musielak, and M. Cuntz. “Orbital Stability of Exomoons and Submoons with Applications to Kepler 1625b-I”. **AJ** 159.6, 260 (2020), p. 260. DOI:10.3847/1538-3881/ab89a7.

34. Q. J. Socia, W. F. Welsh, J. A. Orosz, W. D. Cochran, et al. “Kepler-1661 b: A Neptune-sized Kepler Transiting Circumbinary Planet around a Grazing Eclipsing Binary”. **AJ** 159.3, 94 (2020), p. 94. DOI:10.3847/1538-3881/ab665b.

35. S. K. Yadavalli, B. Quarles, G. Li, and N. Haghighipour. “Effects of flux variation on the surface temperatures of Earth-analog circumbinary planets”. **MNRAS** 499.1 (2020), pp. 1506–1521. DOI:10.1093/mnras/staa2980.

36. Z. Hong, B. Quarles, G. Li, and J. A. Orosz. “Could There Be an Undetected Inner Planet Near the Stability Limit in Kepler-1647?” **AJ** 158.1, 8 (2019), p. 8. DOI:10.3847/1538-3881/ab2127.

37. S. Y. Moorman, B. L. Quarles, Z. Wang, and M. Cuntz. “The habitable zone of Kepler-16: impact of binarity and climate models”. **International Journal of Astrobiology** 18.1 (2019), pp. 79–89. DOI:10.1017/S1473550418000058.

38. J. A. Orosz, W. F. Welsh, N. Haghighipour, B. Quarles, et al. “Discovery of a Third Transiting Planet in the Kepler-47 Circumbinary System”. **AJ** 157.5, 174 (2019), p. 174. DOI:10.3847/1538-3881/ab0ca0.

39. B. Quarles and N. Kaib. “Instabilities in the Early Solar System Due to a Self-gravitating Disk”. **AJ** 157.2, 67 (2019), p. 67. DOI:10.3847/1538-3881/aafa71.

40. B. Quarles, G. Li, and J. J. Lissauer. “Obliquity Evolution of Circumstellar Planets in Sun-like Stellar Binaries”. **ApJ** 886.1, 56 (2019), p. 56. DOI:10.3847/1538-4357/ab46b5.

41. B. Quarles and J. J. Lissauer. “Long-term Stability of Tightly Packed Multi-planet Systems in Prograde, Coplanar, Circumstellar Orbits within the α Centauri AB System”. **AJ** 155.3, 130 (2018), p. 130. DOI:10.3847/1538-3881/aaa966.

42. B. Quarles, J. J. Lissauer, and N. Kaib. “Long-term Stability of Planets in the α Centauri System. II. Forced Eccentricities”. **AJ** 155.2, 64 (2018), p. 64. DOI:10.3847/1538-3881/aaa197.

43. B. Quarles, S. Satyal, V. Kostov, N. Kaib, et al. “Stability Limits of Circumbinary Planets: Is There a Pile-up in the Kepler CBPs?” **ApJ** 856.2, 150 (2018), p. 150. DOI:10.3847/1538-4357/aab264.

44. B. Quarles, E. V. Quintana, E. Lopez, J. E. Schlieder, et al. “Plausible Compositions of the Seven TRAPPIST-1 Planets Using Long-term Dynamical Simulations”. **ApJL** 842.1, L5 (2017), p. L5. DOI:10.3847/2041-8213/aa74bf.

45. J. W. Barnes, B. Quarles, J. J. Lissauer, J. Chambers, et al. “Obliquity Variability of a Potentially Habitable Early Venus”. **Astrobiology** 16.7 (2016), pp. 487–499. DOI:10.1089/ast.2015.1427.

46. J. L. Coughlin, F. Mullally, S. E. Thompson, J. F. Rowe, et al. “Planetary Candidates Observed by Kepler. VII. The First Fully Uniform Catalog Based on the Entire 48-month Data Set (Q1-Q17 DR24)”. **ApJS** 224.1, 12 (2016), p. 12. DOI:10.3847/0067-0049/224/1/12.

47. B. Kirk, K. Conroy, A. Prša, M. Abdul-Masih, et al. “Kepler Eclipsing Binary Stars. VII. The Catalog of Eclipsing Binaries Found in the Entire Kepler Data Set”. **AJ** 151.3, 68 (2016), p. 68. DOI:10.3847/0004-6256/151/3/68.

48. V. B. Kostov, J. A. Orosz, W. F. Welsh, L. R. Doyle, et al. “Kepler-1647b: The Largest and Longest-period Kepler Transiting Circumbinary Planet”. **ApJ** 827.1, 86 (2016), p. 86. DOI:10.3847/0004-637X/827/1/86.

49. B. Quarles and J. J. Lissauer. “Long-term Stability of Planets in the α Centauri System”. **AJ** 151.5, 111 (2016), p. 111. DOI:10.3847/0004-6256/151/5/111.

50. F. Mullally, J. L. Coughlin, S. E. Thompson, J. Rowe, et al. “Planetary Candidates Observed by Kepler. VI. Planet Sample from Q1–Q16 (47 Months)”. **ApJS** 217.2, 31 (2015), p. 31. DOI:10.1088/0067-0049/217/2/31.

51. B. Quarles and J. J. Lissauer. “Dynamical evolution of the Earth-Moon progenitors - Whence Theia?” **Icarus** 248 (2015), pp. 318–339. DOI:10.1016/j.icarus.2014.10.044.

52. J. F. Rowe, J. L. Coughlin, V. Antoci, T. Barclay, et al. “Planetary Candidates Observed by Kepler. V. Planet Sample from Q1-Q12 (36 Months)”. **ApJS** 217.1, 16 (2015), p. 16. DOI:10.1088/0067-0049/217/1/16.

53. W. F. Welsh, J. A. Orosz, D. R. Short, W. D. Cochran, et al. “Kepler 453 b - The 10th Kepler Transiting Circumbinary Planet”. **ApJ** 809.1, 26 (2015), p. 26. DOI:10.1088/0004-637X/809/1/26.

54. K. E. Conroy, A. Prša, K. G. Stassun, S. Bloemen, et al. “Kepler Eclipsing Binary Stars. V. Identification of 31 Candidate Eclipsing Binaries in the K2 Engineering Dataset”. **PASP** 126.944 (2014), p. 914. DOI:10.1086/678953.

55. Z. E. Musielak and B. Quarles. “The three-body problem”. **Reports on Progress in Physics** 77.6, 065901 (2014), p. 065901. DOI:10.1088/0034-4885/77/6/065901.

56. E. V. Quintana, T. Barclay, S. N. Raymond, J. F. Rowe, et al. “An Earth-Sized Planet in the Habitable Zone of a Cool Star”. **Science** 344.6181 (2014), pp. 277–280. DOI:10.1126/science.1249403.

57. S. Satyal, T. C. Hinse, B. Quarles, and J. P. Noyola. “Chaotic dynamics of the planet in HD 196885 AB”. **MNRAS** 443.2 (2014), pp. 1310–1318. DOI:10.1093/mnras/stu1221.

58. M. Cuntz, B. Quarles, J. Eberle, and A. Shukayr. “On the Possibility of Habitable Moons in the System of HD 23079: Results from Orbital Stability Studies”. **PASA** 30, e033 (2013), e033. DOI:10.1017/pas.2013.011.

59. S. Satyal, B. Quarles, and T. C. Hinse. “Application of chaos indicators in the study of dynamics of S-type extrasolar planets in stellar binaries”. **MNRAS** 433.3 (2013), pp. 2215–2225. DOI:10.1093/mnras/stt888.

60. B. Quarles, M. Cuntz, and Z. E. Musielak. “The stability of the suggested planet in the ν Octantis system: a numerical and statistical study”. **MNRAS** 421.4 (2012), pp. 2930–2939. DOI:10.1111/j.1365-2966.2012.20568.x.

61. B. Quarles, Z. E. Musielak, and M. Cuntz. “Habitability of Earth-mass Planets and Moons in the Kepler-16 System”. **ApJ** 750.1, 14 (2012), p. 14. DOI:10.1088/0004-637X/750/1/14.

62. B. Quarles, Z. E. Musielak, and M. Cuntz. “Study of resonances for the restricted 3-body problem”. **Astronomische Nachrichten** 333.7 (2012), pp. 551–560. DOI:10.1002/asna.201111704.

63. J. Eberle, M. Cuntz, B. Quarles, and Z. E. Musielak. “Case studies of habitable Trojan planets in the system of HD 23079”. **International Journal of Astrobiology** 10.4 (2011), pp. 325–334. DOI:10.1017/S1473550411000176.

64. B. Quarles, J. Eberle, Z. E. Musielak, and M. Cuntz. “The instability transition for the restricted 3-body problem. III. The Lyapunov exponent criterion”. **A&A** 533, A2 (2011), A2. DOI:10.1051/0004-6361/201016199.