Billy Quarles

Assistant Professor

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Education

2012 **PhD in Physics & Applied Physics**, University of Texas at Arlington, Arlington

2008 **MS in Physics**, Stephen F. Austin State University, Physics, Nacogdoches

2006 **BS in Physics & Astronomy**, Texas Christian University, Physics & Astronomy, Fort Worth

PhD Dissertation

Title *Selected studies of celestial dynamics and habitability of extrasolar planetary systems*

Supervisors Zdzislaw Musielak & Manfred Cuntz

Research Interests

Theory Gravitational Dynamics, Planetary Spin Dynamics, Planet Formation, Planetary Habitability

Observation Binary Stars, Exoplanets in Binary Stars, Multiple Planet Systems

Teaching Experience

8/24 – present **Assistant Professor**, Texas A&M University-Commerce, Commerce, TX
- ASTR1303: Stars and the Universe
- ASTR1304: Solar System Astronomy
- ASTR120: Life in the Universe

8/21 – 5/24 **Assistant Professor**, Valdosta State University, Valdosta, GA
- ASTR1000: Introduction to the Universe
- ASTR1010K: Astronomy of the Solar System
- ASTR1020K: Stellar and Galactic Astronomy
- PHYS2700: Modern Physics
- ASTR3800: Astrobiology
- PHYS3820: Computational Physics
- ASTR4410: Modern Astrophysics
- ASTR3220: Cosmology

8/20 **Guest Lecturer**, Georgia Institute of Technology, Atlanta, GA
- Mathematical Physics

8/15 – 5/16 **Visiting Assistant Professor**, University of Nebraska at Kearney, Kearney, NE
- Introductory Physics I & II for Health Science majors
- Conceptual Physical Science
- Introductory Astronomy

9/12 – 12/12 **Astronomy Lab Supervisor**, University of Texas at Arlington, Arlington, TX

1/09 – 8/12 **Graduate Teaching Assistant**, University of Texas at Arlington, Arlington, TX

8/10 – 12/10 **Astronomy Lecturer**, University of Texas at Arlington, Arlington, TX

8/06 – 5/08 **Graduate Teaching Assistant**, Stephen F. Austin State University, Nacogdoches, TX

Research Experience

8/18 – 8/21 **Research Scientist**, Georgia Institute of Technology, Atlanta, GA

8/16 – 8/18 **Postdoctoral Research Associate**, University of Oklahoma, Norman, OK

5/16 – 8/16 **Postdoctoral Research Associate**, University of Idaho, Moscow, ID

9/15 – 8/16 **Technical Consultant**, San Diego State University, San Diego, CA

1/13 – 8/15 **Postdoctoral Research Fellow**, NASA Ames Research Center, Moffett Field, CA

Student Research

Undergraduate Students (*11*)

1/25 – present **Alan Briseno**, East Texas A&M University, Commerce, TX

8/24 – present **Austin Baxley**, East Texas A&M University, Commerce, TX

8/23 – present **Ian McLean**, Valdosta State University, Valdosta, GA

1/23 – present **Jasmine Freeman**, Valdosta State University, Valdosta, GA

1/23 – present **Jordan Hewins**, Valdosta State University, Valdosta, GA

8/23 – 5/25 **Hector Prieto**, Valdosta State University, Valdosta, GA

6/22 – 5/23 **Ralph Avery**, Valdosta State University, Valdosta, GA

5/21 – 8/21 **Oshina Jagtap**†, University of Texas at Arlington, Arlington, TX

8/18 – 8/21 **Karthik Yadavalli**†, Georgia Institute of Technology, Atlanta, GA

8/18 – 5/19 **Ziqian Hong**†, Georgia Institute of Technology, Atlanta, GA

8/17 – 5/18 **Ethan White**, University of Oklahoma, Norman, OK

Graduate Students (*6*)

1/22 – present **Shaan Patel**, University of Texas at Arlington, Arlington, TX

8/18 – 5/22 **Steven Kreyche**† **(Ph.D. awarded in 2022)**, University of Idaho, Moscow, ID

8/17 – 12/21 **Marialis Rosario-Franco**† **(Ph.D. awarded in 2021)**, University of Texas at Arlington, Arlington, TX

8/16 – 5/19 **Matt Clement (Ph.D. awarded in 2019)**, University of Oklahoma, Norman, OK

8/17 – 5/18 **Sarah Moorman**†, University of Texas at Arlington, Arlington, TX

8/12 – 12/14 **Suman Satyal**[†] **(Ph.D. awarded in 2014)**, University of Texas at Arlington, Arlington, TX

[†]Mentoring resulted in a publication and is denoted by color in my publication list.

Media Coverage

Aug 2025 Scientificamerican.com – Our Nearest Sunlike Star Might Have a Planet, JWST Shows in Stunning Finding

Jul 2023 Kurzgesagt shorts – How Many Moons Could Earth Handle?

Aug 2022 Newscientist.com – Physicists work out how many moons Earth could have

Aug 2022 Universetoday.com – What is the Maximum Number of Moons that Earth Could Have?

Jan 2022 Scientificamerican.com – Astronomers Have Found Another Possible 'Exomoon' beyond Our Solar System

Jun 2020 theScienceBreaker.org – Climatic Changes for Earths in Sun-like Stellar Binaries

Nov 2019 Phys.org – Exoplanet axis study boosts hopes of complex life, just not next door

Jul 2019 Cosmos Magazine – Planets in multiple-star systems may be habitable

May 2019 Sky and Telescope – Third planet found orbiting binary star system

Jun 2017 ScienceDaily.com – Composition of Earth-size planets in TRAPPIST-1 system

Jun 2016 Astrobiology Magazine – New planet largest discovered orbits two suns

Apr 2014 National Geographic – Kepler Telescope Discovers Most Earth-Like Planet Yet

Jan 2012 Universe Today – Goldilocks moons

Jan 2012 National Geographic – "Tatooine" Planet With Two Suns Could Host Habitable Moon?

Jan 2012 Space.com (NBC News) – Alien Earths could have 2 suns like Star Wars Tatooine

Institutional Service

East Texas A& M University

- **College Committee**: Generative AI Academic Dishonesty Committee

Valdosta State

- **Departmental Committees**: Physics Departmental Action Team (DAT), Astronomy & Physics Advisors, Engineering Technology Faculty Search, Department Head Search
- **College Committee**: Data Science Curriculum
- **University Committees**: Undergraduate Research Council, Technology, Student Affairs

Georgia Tech

- **Cosmic Coffee** (journal club) organizer (2018-2021) in the Center for Relativistic Astrophysics at Georgia Tech

Review Experience

Journals Nature Astronomy, Astrophysical/Astronomical Journal, Astronomy & Astrophysics, Icarus, Monthly Notices of the Royal Astronomical Society, Advances in Space Research, Physical Letters A, Advances in Astronomy

Grants NASA Emerging Worlds, NASA TESS Guest Observer Program, K2 Guest Observer Program, NASA Earth and Space Science Fellowship Program, NASA Postdoctoral Program

Research Collaborations

Kepler Working Groups

2013 – 2016 Eclipsing Binary, Transit Timing Variations & Multiple-Body, Threshold Crossing Event Review Team (TCERT)

TESS Working Groups

2016 – present Circumbinary Planets, Transit Timing Variations & Multiple-Body

Books and Monographs Published

Z. Musielak and B. Quarles. Three Body Dynamics and Its Applications to Exoplanets. SpringerBriefs in Astronomy, July 2017. Google Scholar ISBN 9783319582269

Open Educational Resources (OERs)

- Computational Physics – saturnaxis.github.io/CompPhysics
- Modern Astrophysics – saturnaxis.github.io/ModernAstro
- Astrobiology – saturnaxis.github.io/Astrobio
- Modern Physics – saturnaxis.github.io/ModernPhysics
- Cosmology – saturnaxis.github.io/Cosmology
- Introduction to Research – saturnaxis.github.io/exoplanet-binary

Research Grants and Awards

CY 22-24 CoI, NASA TESS GO Cycle 4, Discovering Circumbinary Planets With TESS, $70,000 (including student support)

CY 22-24 Collaborator, JWST GO Cycle 1, Searching Our Closest Stellar Neighbor for Planets and Zodiacal Emission

FY 20-22 CoI, NASA Astrophysics Theory Program, Debris Disk Morphology due to Stellar Encounters,$523,145

FY 19-20 CoI, NASA Habitable Worlds, Tidal Obliquity Variations of Potentially Habitable Planets, $211,098

FY 19-20 CoI, NASA Sellers Exoplanet Environments Collaboration, Where to Search for Habitable Worlds, $500,000

CY 19-20 Collaborator, NASA TESS GI, Detection and Prioritization of Warm Jupiters

CY 16-18 Collaborator, NASA SSW, Comprehensive Analyses of Comet Siding Spring, Before, During and After Its Mars Encounter

CY 16-18 CoI, NASA XRP, Warm, Large Exoplanets

FY 14-16 CoI, NASA Astrobiology: Exobiology and Evolutionary Biology, Obliquity Stability of Potentially Habitable Worlds

Peer-Reviewed Publications (59)

NASA ADS Library (~2500 citations; **H-index**[1] **= 22**)
Google Scholar Library (~*3460 citations*; **H-index = 24**)
ArXiv Library

1. C. Beichman, A. Sanghi, D, Mawet, P. Kervella, K. Wagner, B. Quarles et al. Worlds Next Door: A Candidate Giant Planet Imaged in the Habitable Zone of α Cen A. I. Observations, Orbital and Physical Properties, and Exozodi Upper Limits. *ApJL*. **In Press** NASA ADS: 2025arXiv250803814B

2. S. Patel, B. Quarles, M. Cuntz, N. N. Weinberg. Can Moons Exist around the Habitable-zone Planet K2-18b?. *MNRAS Letters*. **July 2025** NASA ADS: 2025MNRAS.tmpL..73P

3. D. Kipping, A. Teachey, D. Yahalomi, B. Cassesse, B. Quarles et al. Concerning the possible exomoons around Kepler-1625 b and Kepler-1708 b. *NatAs*. **Jun 2025** NASA ADS: 2025NatAs...9..795K

4. S. Patel, B. Quarles, M. Cuntz. Orbital stability of hierarchical three- and four-body systems with inclination: results for Kepler-1625, 1708, and HD 23079. *MNRAS*. **Jan 2025** NASA ADS: 2025MNRAS.537.2291P

5. B. Quarles, H. Gautham Bhaskar, G. Li. Main-sequence systems: orbital stability in stellar binaries. Book Chapter: *Encyclopedia of Astrophysics*. **July 2024** NASA ADS: 2024arXiv240713901Q

6. H. Gautham Bhaskar, N. W. H. Moore, J. Gao, G. Li., B. Quarles Main-sequence systems: orbital stability around single star hosts. Book Chapter: *Encyclopedia of Astrophysics*. **July 2024** NASA ADS: 2024arXiv240713899G

7. N. Kaib, A. Parsells, S. Grimm, B. Quarles, M. Clement More realistic planetesimal masses alter Kuiper belt formation models and add stochasticity. *Icarus*. **Dec 2023** NASA ADS: 2024Icar..41516057K

8. S. Adelbert, A. Penzlin, C. Schaefer, W. Kley, B. Quarles, R. Sfair Stability of coorbital planets around binaries. *A&A*. **Dec 2023** NASA ADS: 2023A%26A...680A..29A

9. M. El Moutamid, K. Stevenson, B. Quarles, N. Lewis, et al. Mass derivation of planets K2-21b and K2-21c from transit timing variations. *MNRAS*. **Apr 2023** NASA ADS: 2023MNRAS.520.4226E

10. J. Jackson, R. Dawson, B. Quarles, and J. Dong. Statistical Analysis of the Dearth of Super-eccentric Jupiters in the Kepler Sample. *AJ*. **Mar 2023** NASA ADS: 2023AJ....165...82J

11. S. Satyal, B. Quarles, and M. Rosario-Franco. Moon packing around an Earth-mass planet. *MNRAS*. **Oct 2022** NASA ADS: 2022MNRAS.516...39S

12. M. Clement, E. Quintana, and B. Quarles. Habitable Planet Formation around Low-mass Stars: Rapid Accretion, Rapid Debris Removal, and the Essential Contribution of External Giants. *ApJ*. **Mar 2022** NASA ADS: 2022ApJ...928...91C

13. D. Kipping, S. Bryson, C. Burke, J. Christiansen, et al. including B. Quarles. An exomoon survey of 70 cool giant exoplanets and the new candidate Kepler-1708 b-i. *NatAs*. **Jan 2022** NASA ADS: 2022NatAs...6..367K

14. B. Quarles, G. Li, and J.J. Lissauer. Milankovitch cycles for a circumstellar Earth-analogue within α Centauri-like binaries. *MNRAS*. **Jan 2022** NASA ADS: 2022MNRAS.509.2736Q

[1]H-index is a measure of research output and impact within Astronomy. It indicates the number of publications that have H citations.

15. V. Kostov, B. Powell, J. Orosz, W. Welsh, et al. including B. Quarles. TIC 172900988: A Transiting Circumbinary Planet Detected in One Sector of TESS Data. *AJ.* **Dec 2021** NASA ADS: 2021AJ....162..234K

16. O. Jagtap, B. Quarles, and M. Cuntz. Updated studies on exomoons in the HD 23079 system. *PASA.* **Nov 2021** NASA ADS: 2021PASA...38...59J

17. S. Kreyche, J.W. Barnes, B. Quarles, and J.E Chambers. Exploring Tidal Obliquity Variations with SMERCURY-T. *PSJ.* **Oct 2021** NASA ADS: 2021PSJ.....2..187K

18. B. Quarles, S. Eggl, M. Rosario-Franco and G. Li. Exomoons in Systems with a Strong Perturber: Applications to α Cen AB. *AJ.* **Aug 2021** NASA ADS: 2021AJ....162...58Q

19. J. Dong, C. Huang, R. Dawson, D. Foreman-Mackey, et al. including B. Quarles Warm Jupiters in TESS Full-frame Images: A Catalog and Observed Eccentricity Distribution for Year 1. *ApJS.* July 2021 NASA ADS: 2021ApJS..255....6D

20. B. Quarles, G. Li, and M. Rosario-Franco. Application of Orbital Stability and Tidal Migration Constraints for Exomoon Candidates. *ApJL.* Oct 2020 NASA ADS: 2020ApJ...902L..20Q

21. V. Kostov, W. Welsh, N. Haghighipour, B. Quarles, et al. Multiple Transits during a Single Conjunction: Identifying Transiting Circumbinary Planetary Candidates from TESS. *AJ.* October 2020 NASA ADS: 2020AJ....160..174K

22. S. K. Yadavalli, B. Quarles, G. Li, and N. Haghighipour. Effects of flux variation on the surface temperatures of Earth-analog circumbinary planets. *MNRAS.* September 2020 NASA ADS: 2020MNRAS.499.1506Y

23. R. Martin, J. J. Lissauer, and B. Quarles. Evolution of α Centauri B's protoplanetary disc. *AJ.* June 2020 NASA ADS: 2020MNRAS.496.2436M

24. M. Rosario-Franco, B. Quarles, M. Cuntz, and Z. Musielak. Orbital Stability of Exomoons and Submoons with Applications to Kepler 1625b-I. *AJ.* June 2020 NASA ADS: 2020AJ....159..260R

25. V. Kostov, J. Orosz, A. Feinstein, W. Welsh, et al. including B. Quarles. TOI-1338: TESS' First Transiting Circumbinary Planet. *ApJ.* June 2020 NASA ADS: 2020AJ....159..253K

26. S. Kreyche, J. Barnes, B. Quarles, J. J. Lissauer, J. Chambers, and M. Hedman. Orbital eccentricity influences the obliquity stability of retrograde-rotating planets. *Planetary Science Journal.* June 2020 NASA ADS: 2020PSJ.....1....8K

27. Q. Socia, W. Welsh, J. Orosz, W. D. Cochran, et al. including B. Quarles. KOI-3152 b: A Kepler Transiting Circumbinary Planet in a Grazing Eclipsing Binary. *AJ.* March 2020 NASA ADS: 2020AJ....159...94S

28. B. Quarles, G. Li, V. Kostov, and N. Haghighipour. Orbital Stability of Circumstellar Planets in Binary Systems. *AJ.* March 2020 NASA ADS: 2020AJ....159...80Q

29. C. Beichman, M. Ygouf, J. Sayson, Y. Yung, et al. including B. Quarles. Searching for Planets Orbiting α Cen A with the James Webb Space Telescope. *PASP.* January 2020 NASA ADS: 2020PASP..132a5002B

30. B. Quarles, J. W. Barnes, J. J. Lissauer, and J. Chambers. Obliquity Evolution of the Potentially Habitable Exoplanet Kepler-62F. *Astrobiology.* January 2020 NASA ADS: 2020AsBio..20...73Q

31. B. Quarles, G. Li, and J. J. Lissauer. Obliquity Evolution of Circumstellar Planets in Sun-like Stellar Binaries. *ApJ.* November 2019 NASA ADS: 2019ApJ....886..56Q

32. J. A. Orosz, W. F. Welsh, N. Haghighipour, B. Quarles and the *Kepler CBP Working Group*. The Detection and Characterization of a Third Planet in the Kepler-47 Circumbinary System. *AJ*, May 2019. NASA ADS: 2019AJ....157..174O

33. Z. Hong, B. Quarles, G. Li, and J. Orosz. Could There Be an Undetected Inner Planet Near the Stability Limit in Kepler-1647?. *AJ*. NASA ADS: 2019AJ....158....8H

34. B. Quarles, and N. Kaib. Instabilities in the Early Solar System due to a Self-gravitating Disk. *AJ*. NASA ADS: 2019AJ....157...67Q

35. S. Moorman, B. Quarles, Zh. Wang, and M. Cuntz. The Habitable Zone of Kepler-16: Impact of Binarity and Climate Models. *International Journal of Astrobiology*, February 2019. NASA ADS: 2019IJAsB..18...79M

36. B. Quarles, S. Satyal, V. Kostov, N. Kaib, and N. Haghighipour. Stability Limits of Circumbinary Planets: Is There a Pile-up in the Kepler CBPs?. *ApJ*, April 2018. NASA ADS: 2018ApJ...856..150Q

37. B. Quarles and J. J. Lissauer. Long-Term Stability of Tightly Packed Multi-Planet Systems in Prograde, Coplanar, Circumstellar Orbits within the alpha Centauri AB System. *AJ*, March 2018. NASA ADS: 2018AJ....155..130Q

38. B. Quarles, J. J. Lissauer, and N. Kaib. Long-Term Stability of Planets in the α Centauri System, II: Forced Eccentricities. *AJ*, February 2018. NASA ADS: 2018AJ....155...64Q

39. B. Quarles, E. Quintana, E. Lopez, J. Schlieder, and T. Barclay. Plausible Compositions of the Seven TRAPPIST-1 Planets Using Long-term Dynamical Simulations. *ApJL*, June 2017. NASA ADS: 2017ApJ...842L...5Q

40. J. Barnes, B. Quarles, J. J. Lissauer, J. E. Chambers, and M. Hedman. Obliquity Variations of an Early Venus. *Astrobiology*, July 2016. NASA ADS: 2016AsBio..16..487B

41. V. Kostov, W. F. Welsh, J. A. Orosz, L. R. Doyle, et al. including B. Quarles. KOI-2939b: the largest and longest-period Kepler transiting circumbinary planet *ApJ*, August 2016. NASA ADS: 2016ApJ...827...86K.

42. B. Quarles and J. J. Lissauer. Long Term Stability of planets in the α Centauri system. *AJ*, May 2016. NASA ADS: 2016AJ....151..111Q.

43. J. Coughlin, F. Mullally, S. Thompson, J. F. Rowe, et al. including B. Quarles. Planetary Candidates Observed By *Kepler*: VII. The First Fully Automated Catalog Based on the Entire 48 Month *Kepler* Dataset (Q1-Q17 DR24). *ApJS*, May 2016. NASA ADS: 2016ApJS..224...12C.

44. B. Kirk, K. Conroy, A. Prša, M. Abdul-Masih, et al. including B. Quarles. Kepler Eclipsing Binary Stars. VII. The Catalog of Eclipsing Binaries Found in the Entire Kepler Data-Set. *AJ*, March 2016. NASA ADS: 2016AJ....151...68K.

45. W. F. Welsh, J. A. Orosz, D. R. Short, N. Haghighipour, et al. including B. Quarles. KIC 9632895 - The 10th Kepler Transiting Circumbinary Planet. *ApJ*, August 2015. NASA ADS: 2015ApJ...809...26W.

46. F. Mullally, J. L. Coughlin, S. E Thompson, J. Rowe, et al. including B. Quarles. Planetary Candidates Observed by *Kepler* VI: Planet Sample from Q1-16 (46 Months). *ApJS*, April 2015. NASA ADS: 2015ApJS..217...31M.

47. J. F., Rowe, J. L. Coughlin, V. Antoci, T. Barclay, et al. including B. Quarles. Planetary Candidates Observed by *Kepler*. V. The Q1-Q12 Planet Candidate Catalogue. *ApJS*, March 2015. NASA ADS: 2015ApJS..217...31M.

48. B. Quarles and J. J. Lissauer Dynamical Evolution of the Earth-Moon Progenitors – Whence Theia?. *Icarus*, March 2015 NASA ADS: 2015Icar..248..318Q.

49. K. E. Conroy, A. Prša, K. G. Stassun, S. Bloemen, et al. including B. Quarles. Kepler Eclipsing Binary Stars. V. Identification of 31 Eclipsing Binaries in the K2 Engineering Data-set. *PASP*, October 2014, NASA ADS: 2014PASP..126..914C.

50. S. Satyal, T. C. Hinse, B. Quarles, and J. P. Noyola. Chaotic dynamics of the planet in HD 196885 AB. *MNRAS*, September 2014. NASA ADS: 2014MNRAS.443.1310S

51. Z. E. Musielak and B. Quarles. The three-body problem. *Reports on Progress in Physics*, June 2014. NASA ADS: 2014RPPh...77f5901M

52. E. V. Quintana, T. Barclay, S. N. Raymond, J. F. Rowe, et al. including B. Quarles. An Earth-Sized Planet in the Habitable Zone of a Cool Star. *Science*, April 2014. NASA ADS: 2014Sci...344..277Q

53. 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*, August 2013, 1211.3956. NASA ADS: 2013MNRAS.433.2215S

54. 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*, May 2013. NASA ADS: 2013PASA...30...33C

55. B. Quarles, Z. E. Musielak, and M. Cuntz. Study of resonances for the restricted 3-body problem. *Astronomische Nachrichten*, August 2012. NASA ADS: 2012AN....333..551Q

56. B. Quarles, Z. E. Musielak, and M. Cuntz. Habitability of Earth-mass Planets and Moons in the Kepler-16 System. *ApJ*, May 2012. NASA ADS: 2012ApJ...750...14Q

57. 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*, April 2012. NASA ADS: 2012MNRAS.421.2930Q

58. 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*, October 2011. NASA ADS: 2011IJAsB..10..325E

59. B. Quarles, J. Eberle, Z. E. Musielak, and M. Cuntz The instability transition for the restricted 3-body problem. *A&A*, September 2011. NASA ADS: 2011A%26A...533A...2Q

Research Notes (1)

1. A. Sanghi, C. Beichman, D, Mawet, W. Balmer, J. Llop-Sayson et al. including B. Quarles. A Preliminary Search for Planets and Exozodiacal Emission Around α Centauri A with JWST/MIRI. *RNAAS*. **May 2025** NASA ADS: 2025RNAAS...9..119S

Invited Talks (*18*)

1. B. Quarles. Planets of the Twin Suns: Revealing the Orbital Dynamics of Binary Star Planets University of Texas at Arlington, Apr 2025.

2. B. Quarles. Chasing Tatooine: How Astronomers Found Planets with Double Sunsets East Texas A& M University, Apr 2025.

3. B. Quarles. What if the Earth had no Tilt?. Valdosta State University Planetarium, Mar 2024.

4. B. Quarles. Habitability in Alpha Centauri AB: an astrodynamics perspective. The Alpha Centauri System: Towards New Worlds, Nice Fr (remote), June 2023.

5. B. Quarles. Exoplanets Orbiting Binary Stars. Valdosta State University Planetarium, Mar 2023.

6. B. Quarles. Dangers for Earthlike Planets in Binary Systems. Carnegie Institution for Science: DTM Colloquium, January 2020.

7. B. Quarles. Potential for Exoplanetary Neighbors in Alpha Centauri. Texas Section of the American Physical Society, March 2019.

8. B. Quarles. Extrasolar Planets with 2 Suns: Paradise Lost?. Tulsa City-County Library Idea Box Series, April 2018.

9. B. Quarles. Living on the Edge: Stability Limits of Circumbinary Planets. Georgia Tech CRA Seminar, March 2018.

10. B. Quarles. Exoplanets in Binary Star Systems: Friends or foes?. Louisiana School for Math, Science, and the Arts, Natchitoches, January 2018.

11. B. Quarles. Archimedes and the Giant Planet Instability. Laboratoire d'Astrophysique de Bordeaux Guest Colloquium, June 2017.

12. B. Quarles. An Extremely Cold Case: Formation of the Earth's Moon. University of Oklahoma Department of Physics & Astronomy Guest Colloquium, October 2015.

13. B. Quarles. Vacations on an Earthlike planet: Just add water?. UC-Berkeley Center for Integrative Planetary Science Colloquium, April 2015.

14. B. Quarles. Early Solar System Evolution and Consequences for Habitability. Baylor-CASPER Seminar Series, March 2015.

15. B. Quarles. Early Solar System Evolution and Consequences for Habitability. Texas Christian University Seminar Series, March 2015.

16. B. Quarles, and J. J. Lissauer. Theia's date with destiny: possible conditions leading to a Giant Impact. SETI Institute Seminar Series, YouTube video January 2015.

17. B. Quarles. Theia's Provenance: Regional Source of Earth's Late Impactor, University of Texas at Arlington Department of Physics Colloquium, January 2014.

18. B. Quarles. Chaos in Extrasolar Planets, Texas Christian University Department of Physics & Astronomy Colloquium, February 2011.

Conference Talks (*24*)

1. B. Quarles. Mass derivation of planets K2-21b and K2-21c from transit timing variations In *Georgia Academy of Sciences*, Section IV: Physics, Mathematics, Computer Science and Technology, YouTube video, Mar 2024.

2. B. Quarles, S. Satyal, and M. Rosario-Franco. Moon Packing around an Earth-mass Planet. In *Georgia Academy of Sciences*, Section IV: Physics, Mathematics, Computer Science and Technology, YouTube video Mar 2023.

3. B. Quarles, G. Li, and J. J. Lissauer. Milankovitch Cycles for Earth-analogs in Binary Star Systems. In *AGU/Astrobiology Science Conference*, AGU/Astrobiology Science Conference, May 2022.

4. B. Quarles, G. Li, and J. J. Lissauer. Milankovitch Cycles for Potential Earth-analogs in Alpha Centauri. In *Georgia Academy of Sciences*, Section IV: Physics, Mathematics, Computer Science and Technology, Mar 2022.

5. B. Quarles, G. Li, and M. Rosario-Franco. Validation of Exomoon Candidates Using Orbital Stability and Tidal Constraints. In *American Astronomical Society Meeting Abstracts #237*, volume 53 of *American Astronomical Society Meeting Abstracts*, page #239.04, January 2021.

6. B. Quarles, G. Li, and M. Rosario-Franco. Validation of Exomoon Candidates Using Orbital Stability and Tidal Constraints. (Virtual Meeting) ExomoonFest, November 2020.

7. B. Quarles, G. Li, V. Kostov, and N. Haghighipour. Orbital Stability of Circumstellar Earth-like planets in Binary Systems. In *AAS/Division of Dynamical Astronomy (Virtual Meeting)*, AAS/Division of Dynamical Astronomy Meeting, August 2020.

8. B. Quarles. Obliquity Variations of Terrestrial Planets in α Centauri Chesapeake Bay Exoplanet Meeting, January 2020.

9. B. Quarles, G. Li, and J. J. Lissauer. Obliquity Variations and Habitability in Alpha Centauri AB. In *AGU/Astrobiology Science Conference*, AGU/Astrobiology Science Conference, June 2019.

10. B. Quarles, G. Li, and J. J. Lissauer. Obliquity Evolution of Earthlike planets in α Centauri AB. In *AAS/Division of Dynamical Astronomy Meeting*, AAS/Division of Dynamical Astronomy Meeting, June 2019.

11. B. Quarles. The Habitability of Exoplanets Around Sunlike Stars. Georgia Tech Exploration and Origins Colloquium, March 2019.

12. B. Quarles, J. Barnes, J. J. Lissauer, and J. E. Chambers. Obliquity Variations of a Potentially Habitable Kepler-62f. In *AAS/Division of Planetary Sciences Meeting*, AAS/Division of Planetary Sciences Meeting, October 2018.

13. B. Quarles, S. Satyal, V. Kostov, N. Kaib, and N. Haghighipour. Dynamics of Circumbinary Planets Near the Stability Limit. In *AAS/Division of Dynamical Astronomy Meeting*, AAS/Division of Dynamical Astronomy Meeting, April 2018.

14. B. Quarles, and N. Kaib. Probing the Early Solar System using GPUs. Numerical Integrations Methods in Planetary Science Meeting, University of Toronto - Scarborough, August 2017.

15. B. Quarles, J. J. Lissauer, and N. Kaib. Maximizing planet packing in the alpha Centauri AB system. In *AAS/Division of Dynamical Astronomy Meeting*, AAS/Division of Dynamical Astronomy Meeting, June 2017.

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