# **Andrew Vanderburg**

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# Appointments

Assistant Professor of Physics at the Massachusetts Institute of Technology Assistant Professor of Astronomy at The University of Wisconsin-Madison Research Associate at the Smithsonian Astrophysical Observatory NASA Sagan Postdoctoral Fellow at The University of Texas at Austin Postdoctoral Associate at Harvard University July 2021 - present August 2020 - August 2021 September 2017 - present September 2017 - August 2020 July 2017 - September 2017

#### Education

Harvard University

Ph.D. Astronomy and Astrophysics (2017) A.M. Astronomy and Astrophysics (2015) University of California, Berkeley

B.A. Physics and Astrophysics (2013)

Cambridge, MA

August 2013 - May 2017

Berkeley, CA August 2009 - May 2013

### Research Interests

- Searching for and studying small planets orbiting other stars
- Determining detailed physical properties of terrestrial planets
- Learning about the origins and evolution of planetary systems
- Testing theories of planetary migration by studying the architecture of planetary systems
- Measuring the prevalence of planets in different galactic environments
- Developing and using new data analysis techniques in astronomy, including machine learning and deep learning.

#### Awards

- 2021 Wisconsin Undergraduate Research Scholars Exceptional Mentorship Award
- 2020 Scialog Fellow
- 2018 NASA Exceptional Public Achievement Medal
- 2017 NASA Sagan Fellow
- 2016 Publications of the Astronomical Society of the Pacific Outstanding Reviewer Award
- 2015 K2 Science Conference Student Researcher Award
- 2013 National Science Foundation Graduate Research Fellow
- 2013 Harvard Astronomy James Mills Peirce Fellow
- 2013 UC Berkeley Astronomy Department Dorothea Klumpke Roberts Prize
- 2013 UC Berkeley Physics Department Citation Award
- 2013 American Astronomy Society Chambliss Astronomy Achievement Student Award
- 2012 Barry Goldwater Scholar
- 2012 Caltech Summer Undergraduate Research Fellow
- 2009 National Merit Scholar

## **Publication Summary**

Refereed/under review publications: 187 total, 16 first author (two in Nature), 27 second author

A full listing of publications is available at the end of this document.

Total Citations to Refereed Publications: 4813 total, 1111 for first author papers

Unrefereed Publications: 8 total, 1 as first author Invited Review Chapters: 1 total, 1 as first author

# Successful/Awarded Grants

- PI of the NASA Extreme Precision Radial Velocity Foundation Science award: "Removing Stellar Activity Signals from Radial Velocity Measurements Using Machine Learning"
   Total budget: \$219,928.
- PI of the TESS Guest Investigator Cycle 4 award: "Disintegrating Rocky Bodies Transiting White Dwarfs: The Key to Understanding Exoplanet Compositions"

  Total budget: \$67,000.
- PI of the Astrophysics Data Analysis Program award: "Completing Kepler's Census: Using Deep Neural Networks to Measure the Frequency of Earth Analogs"

  Total budget: \$475,010.
- PI of the TESS Guest Investigator Cycle 3 award: "Disintegrating Rocky Bodies Transiting White Dwarfs: The Key to Understanding Exoplanet Compositions" Total budget: \$45,000.
- PI of the TESS Guest Investigator Cycle 2 award: "Disintegrating Rocky Bodies Transiting White Dwarfs: The Key to Understanding Exoplanet Compositions"

  Total budget: \$43,000.
- PI of the K2 Guest Observer Cycle 6 award: "Solidifying K2's Legacy: Short-Cadence Characterization of K2's Benchmark Planetary Systems"

  Total budget: \$30,000. (admin PI: Adam Kraus)
- PI of the TESS Guest Investigator Cycle 1 award: "Disintegrating Rocky Bodies Transiting White Dwarfs: The Key to Understanding Exoplanet Compositions"

  Total budget: \$37,000. (admin PI: Adam Kraus)
- PI of the Sagan Fellowship award: "The Galactic Distribution of Exoplanets" Total budget: \$341,550. (admin PI: Adam Kraus)

# Teaching and Advising

## Classroom Experience

- Instructor for Astronomy/Geoscience 160 at the University of Wisconsin-Madison, Spring 2021. This course, called "Life in the Universe" is aimed at non-science majors and discusses the necessary conditions and search for life on other planets.
- Instructor for Astronomy 236 at the University of Wisconsin-Madison, Fall 2020. This course, called "History of Matter in the Universe" is aimed at non-astronomy majors and satisfies a university-wide communications requirement.
- Co-designed and co-taught a "Hands on Session" at the 2018 Sagan Summer Workshop in Pasadena, CA. The session was designed to teach beginning graduate students how to use the vespa software package to calculate the false positive probability of transiting candidate exoplanets and guide them through independent "group projects" to apply their skills. AV led the design of the group projects.
- Guest Lecturer for The University of Texas at Austin Astronomy 381 (Planetary Astrophysics) and Astronomy 364P (Planetary Systems), Fall 2017. Instructor: Adam Kraus.
- Teaching Fellow for Harvard Astronomy 218 (Graduate level radio astronomy), Fall 2015. Instructor: Lincoln Greenhill.
- Teaching Fellow for Harvard Astronomy 16 (Undergraduate level stellar and planetary astronomy), Spring 2015. Instructor: John Johnson.
- Lead instructor for UC Berkeley Electrical Engineering/Computer Science 98/198 (Pioneers in Engineering Robotics Mentorship), Spring 2013. Instructor of record: Pieter Abbeel.

#### Advising

Graduate Students

- Lizhou Sha (University of Wisconsin-Madison): August 2020-present, primarily advised by AV.
- Robert Aloisi (University of Wisconsin-Madison): August 2020-present, primarily advised by AV.
- Liang Yu (Massachusetts Institute of Technology): June 2018-May 2019. AV was the primary advisor of the final chapter of her thesis, and Ian Crossfield was her primary thesis advisor. Liang has published a paper (as first author) on this work.

#### $Under graduate\ Students$

- Ben Capistrant (University of Wisconsin-Madison): May 2021-present, primarily advised by Melinda Soares-Furtado, officially advised by AV.
- Sarah Kubiak (University of Wisconsin-Madison): December 2020-present, primarily advised by AV.
- Drake Lehmann (University of Wisconsin-Madison): October 2020-present, primarily advised by AV.
- Elyse Incha (University of Wisconsin-Madison): August 2020-present, primarily advised by AV.
- Ben Steck (University of Wisconsin-Madison): August 2020-May 2021, primarily advised by AV.
- Ben Havlicek (University of Wisconsin-Madison): August 2020-December 2020, primarily advised by AV.
- Maura Lally (Northwestern University): June 2019-present, primarily advised by AV. Maura has submitted a paper (as first author) describing the results of her work.
- Zoe de Beurs (University of Texas at Austin): September 2018-present, primarily advised by AV. Zoe has submitted a paper (as first author) describing the results of her work.
- Aditya Shah (University of Texas at Austin): August 2018-May 2019, primarily advised by AV.
- Gerlinder Difo Cheri (University of the Virgin Islands). June-August 2018. Summer TAURUS internship, primarily advised by AV.
- Anne Dattilo (University of Texas at Austin): Dec 2017-August 2019, primarily advised by AV. Anne has published a paper (as first author) describing the results of her work.
- Rayna Rampalli (Wellesley College): June 2017-May 2019. Summer internship (primarily advised by AV) and senior thesis (advised by D. Latham, assisted by AV). Rayna has published a paper (as first author) describing some of the results from her senior thesis.
- Clea Schumer (Harvard College): October 2016-August 2017. Primarily advised by AV.
- Andrew Mayo (Harvard College): April 2014-August 2017. Advised by AV during semesters, a summer internship (2015, official advisor J. Johnson), and senior thesis (2016-2017, primary advisor AV, official advisor D. Latham). Andrew Mayo is first author on a paper describing his senior thesis and co-author on six other papers resulting from his project.

### High School Students

- Sam Christian (Liberal Arts and Science Academy, Austin, TX): June 2020-present: primarily advised by AV.
- Alex Reichenbach (Phillips Andover Academy, Andover, MA): August 2017-December 2017: External advisor for Andover Physics 530 (senior level astronomy research course).
- Andrew Wang (Phillips Andover Academy, Andover, MA): August 2017-December 2017: External advisor for Andover Physics 530 (senior level astronomy research course).
- Joshua Marsh (Tully State High School, Tully, Queensland, Australia): July 2017-August 2017: MIT Research Science Institute intern (primarily advised by R. Di Stefano, assisted by AV).
- Josh Kelle (Leander High School, Leander, TX): June 2011-August 2011: Applied Research Laboratory at UT Austin, Science & Engineering Apprenticeship (primarily advised by F. Stefani, assisted by AV).
- Michael Kloc (Westlake High School, Austin, TX): Applied Research Laboratory at UT Austin, Science & Engineering Apprenticeship (primarily advised by F. Stefani, assisted by AV).
- Eliseo Treviño (Akins High School, Austin, TX): Applied Research Laboratory at UT Austin, Science & Engineering Apprenticeship (primarily advised by F. Stefani, assisted by AV).

# Service

#### **Professional Service**

- Referee for Nature, the Astrophysical Journal, the Astrophysical Journal Letters, the Astronomical Journal, Monthly Notices of the Royal Astronomical Society, Nature Astronomy, Astronomy and Astrophysics, Publications of the Astronomical Society of the Pacific, Astronomy and Computing, Advances in Space Research, New Astronomy, and Publications of the Astronomical Society of Australia (2015-present).
- Review Panelist for NASA Keck proposals (2020-2021).
- Panelist for the Hubble Space Telescope Cycle 27, 28, and 29 proposal review (2019-2021).
- External expert reviewer for OPTICON (European) and TAP (Chinese) telescope proposals (2018-present).
- Reviewer for NASA Future Investigators in NASA Earth and Space Science and Technology (FINESST) (2019-2020).
- Reviewer for NASA Earth and Space Science Fellowship (NESSF) proposals (2018).
- Review Panelist for NASA Tabletop Review of K2 mission data products (2017).
- Reviewer for NASA K2 Mission DDT Proposals (2017).
- Poster competition judge for the Kepler/K2 Science Conference V (2019), the 227<sup>th</sup> AAS meeting (2016), the Kepler/K2 Science Conference IV (2017), and the Know Thy Star, Know Thy Planet Meeting (2017).
- Member of the Kepler False Positive Working Group (2017–2020) and Kepler Reliability Working Group (2017–2018)
- Member of the TESS Follow-up Working Group (2017–present) and TESS TOI Working Group (2017-present), the TESS Extended Mission Working Group (2018-2019), and the TESS Science Office (2018-present).
- Produced and publicly released processed K2 data on the K2SFF High Level Science Product hosted at STScI. With over 200,000 light curves, this is the most complete collection of public K2 light curves (2014-2020).

## Department Service

- Member of the University of Wisconsin-Madison Astronomy strategic planning committee (2020-present).
- Member of the University of Wisconsin-Madison Astronomy WIYN telescope allocation committee (2021).
- Member/postdoc representative for the University of Texas Astronomy Research Experience for Undergraduates (REU) selection committee (2019).
- Member/postdoc representative for the University of Texas Astronomy graduate admissions committee (2018-2019).
- Founder/organizer of ExoUpdate, a weekly group meeting for exoplanet researchers in the University of Texas Astronomy department (2017-2020).
- Core group organizer of the University of Texas Pop-Up Institute for Planetary Habitability (2018).
- Mentor for incoming graduate students for the Harvard Astronomy Graduate Student Peer Mentorship Program (2016-2017).

### Outreach

- Volunteer for Pioneers in Engineering robotics competition (Berkeley, CA), which promotes the involvement of underrepresented communities in science and engineering. Was a major participant from 2011-2013 while living in Berkeley, CA, and contributes at a lower level remotely from 2013-present.
- Docent at the Harvard-Smithsonian Center for Astrophysics Observatory Nights (2015-2017)
- Led outreach telescope observing with the Harvard Observing Project (2013-2017).

# **Employment**

Space Sciences Laboratory Research Assistant	June 2013 - August 2013
Texas Research International/Center for Aeromechanics Research Research Assistant	June 2013 - August 2013
Summer Undergraduate Research Fellow at Caltech	June 2012 - August 2012
Institute for Advanced Technology Research Assistant	June 2009 - January 2012

# Talks/Presentations

#### Invited conference talks

- 1. Vanderburg, Andrew "Exoplanet Detection using Machine Learning" as part of the *Machine Learning in Astronomy: Methods, Applications & Challenges* Meeting-in-a-Meeting at the 238<sup>th</sup> American Astronomical Society Meeting, presented remotely due to COVID-19, June 8, 2021.
- 2. Vanderburg, Andrew "An Overview of Transiting Exoplanets" Exoplanets III Heidelberg, presented remotely due to COVID-19, July 27, 2020. Watch online at https://www.youtube.com/watch?v=FjOJuq8UtdE.
- 3. Vanderburg, Andrew "Exoplanet Discoveries from TESS's First Year" as part of the TESS Special Session at the 235<sup>th</sup> American Astronomical Society Meeting, Honolulu, HI, January 6, 2020.
- 4. Vanderburg, Andrew "Benchmark Exoplanet Systems Discovered by the K2 Mission" Kepler & K2 Science Conference V, Glendale, CA, Mar. 5, 2019.
- 5. Vanderburg, Andrew "From Pixels to Planets: The Process of Validating Transiting Planets." Sagan Exoplanet Summer Workshop, Pasadena, CA, July 23, 2018. Watch online at https://www.youtube.com/watch?v=9HzLeELRgy0.
- 6. Vanderburg, Andrew "The Pathway towards Characterizing Exoplanets" University of Texas Pop-Up Institute on Planetary Habitability, Austin, TX, July 10, 2018.
- Vanderburg, Andrew "K2's contribution to Opportunity M" Opportunity M Conference, Cambridge, MA, August 30, 2016.
- Vanderburg, Andrew "Searching for Planets with K2" Big Data@Tel Aviv Conference, Tel Aviv, Israel, December 14, 2015.
- Vanderburg, Andrew et al. "HIP 116454 b: K2's First Exoplanet" as part of the K2 special session at the 225<sup>th</sup> American Astronomical Society Meeting, Seattle, WA, January 5, 2015.

#### Invited seminars/colloquiua

- 1. Vanderburg, Andrew "A Song of Ice and Fire: The fate of planetary systems after stellar death" Cambridge Exoplanet Centre Seminar, presented remotely due to COVID-19, May 4, 2021.
- 2. Vanderburg, Andrew "A Song of Ice and Fire: The fate of planetary systems after stellar death" Tsinghua University Astronomy Colloquium, presented remotely due to COVID-19, February 24, 2021.
- 3. Vanderburg, Andrew et al. "Preparing for Earth 2.0: The Detailed Properties of Terrestrial Exoplanets" MIT Astrophysics Colloquium, presented remotely due to COVID-19, February 8, 2021.
- 4. Vanderburg, Andrew "A Song of Ice and Fire: The fate of planetary systems after stellar death" Université de Montréal Astronomy division seminar, presented remotely due to COVID-19, January 21, 2021.
- 5. Vanderburg, Andrew "A Song of Ice and Fire: The fate of planetary systems after stellar death" Caltech planetary science seminar, presented remotely due to COVID-19, November 10, 2020.
- 6. Vanderburg, Andrew "A Song of Ice and Fire: The fate of planetary systems after stellar death" ESA SCI-S Seminar, presented remotely due to COVID-19, November 5, 2020. Watch online at https://esait.webex.com/webappng/sites/esait/recording/16dab0228801420ea0b02a122937de0f/playback.
- 7. Vanderburg, Andrew et al. "A Giant Planet Candidate Transiting a White Dwarf" Princeton Exoplanet Lunch, presented remotely due to COVID-19, May 4, 2020

- 8. Vanderburg, Andrew et al. "Preparing for Earth 2.0: The Detailed Properties of Terrestrial Exoplanets" Northwestern University CIERA Seminar, Evanston, IL, Feb. 25, 2020.
- 9. Vanderburg, Andrew. "A Disintegrating Minor Planet Transiting a White Dwarf." TAURUS/REU Summer Seminar series, Austin, TX, Jul. 11, 2019.
- 10. Vanderburg, Andrew et al. "Preparing for Earth 2.0: The Detailed Properties of Terrestrial Exoplanets" University of Wisconsin-Madison Astronomy Colloquium, Madison, WI, Feb. 21, 2019.
- 11. Vanderburg, Andrew et al. "Preparing for Earth 2.0: The Detailed Properties of Terrestrial Exoplanets" University of California, Los Angeles Astronomy Colloquium, Los Angeles, CA, Jan. 23, 2019.
- 12. Vanderburg, Andrew et al. "Preparing for Earth 2.0: Understanding the Detailed Properties of Exoplanets to Enable Future Missions to Characterize Earth Analogs" University of Michigan Astronomy Department Colloquium, Ann Arbor, MI, Nov. 1, 2018.
- Vanderburg, Andrew et al. "WASP-47 and the Origin of Hot Jupiters" Carnegie Institution of Science, Department of Terrestrial Magnetism, Astro Seminar, Washington DC, Oct. 5, 2018.
- 14. Vanderburg, Andrew. "A Disintegrating Minor Planet Transiting a White Dwarf." TAURUS Summer Seminar series, Austin, TX, Jul. 17, 2018.
- 15. Vanderburg, Andrew et al. "WASP-47 and the Origin of Hot Jupiters" Lowell Observatory Colloquium, Flagstaff, AZ, Mar. 8, 2018.
- 16. Vanderburg, Andrew et al. "WASP-47 and the Origin of Hot Jupiters" University of Texas at Austin Astronomy Department Colloquium, Austin, TX, Sept.19, 2017.
- 17. Vanderburg, Andrew et al. "The Past, Present, and Future of Planetary Systems" Harvard-Smithsonian Center for Astrophysics, Dissertation Colloquium, Cambridge, MA, May 2, 2017.
- 18. Vanderburg, Andrew et al. "The Past, Present, and Future of Planetary Systems" Vanderbilt University Seminar, Nashville, TN, November 4, 2016.
- 19. Vanderburg, Andrew et al. "The Past, Present, and Future of Planetary Systems" MIT Astrophysics Brown-Bag Lunch Seminar, Cambridge, MA, October 31, 2016.
- Vanderburg, Andrew et al. "The Past, Present, and Future of Planetary Systems" IPAC Seminar, Pasadena, CA, October 28, 2016.
- 21. Vanderburg, Andrew et al. "The Past, Present, and Future of Planetary Systems" Penn State CEHW Seminar, State College, PA, October 10, 2016.
- 22. Vanderburg, Andrew et al. "The Past, Present, and Future of Planetary Systems" UC Santa Cruz FLASH Seminar, Santa Cruz, CA, September 23, 2016.
- 23. Vanderburg, Andrew et al. "The Past, Present, and Future of Planetary Systems" UC Berkeley CIPS Seminar, Berkeley, CA, September 21, 2016.
- Vanderburg, Andrew et al. "Searching for Planets with K2" NASA Ames Research Center, Moffett Field, CA, April 21, 2016.
- 25. Vanderburg, Andrew et al. "Searching for Planets with K2" Space Telescope Science Institute Star and Planet Formation Seminar, Baltimore, MD, April 8, 2016.
- Vanderburg, Andrew et al. "Searching for Planets with K2" University of Texas ISM Seminar, Austin, TX, January 29, 2016.
- 27. Vanderburg, Andrew et al. "Characterizing K2 Planet Discoveries" Boston University Astronomy Tuesday Lunch Talk, March 2, 2015.

#### Contributed conference talks

- 1. Vanderburg, Andrew et al. "A Giant Planet Candidate Transiting a White Dwarf" Bay Area Exoplanet Meeting, presented remotely due to COVID-19, March 5, 2021.
- 2. Vanderburg, Andrew et al. "A Giant Planet Candidate Transiting a White Dwarf" Chesapeake Bay Area Exoplanet Meeting, presented remotely due to COVID-19, December 11, 2020. Watch online at https://www.youtube.com/watch?v=r-AVje8GBdQ.
- 3. Vanderburg, Andrew et al. "A Giant Planet Candidate Transiting a White Dwarf" TESS Science Team Meeting, presented remotely due to COVID-19, June 11, 2020
- 4. Vanderburg, Andrew et al. "A Giant Planet Candidate Transiting a White Dwarf" 236<sup>th</sup> American Astronomical Society Meeting, presented remotely due to COVID-19, June 2, 2020
- 5. Vanderburg, Andrew et al. "Planet Occurrence in the M67 Open Cluster" 235<sup>th</sup> American Astronomical Society Meeting, Honolulu, HI, January 5, 2020
- Vanderburg, Andrew et al. "Planet Occurrence in the M67 Open Cluster" NASA Hubble Fellowship Program Symposium, Washington D.C., October 21, 2019
- 7. Vanderburg, Andrew et al. "Identifying Exoplanets with Deep Learning: New Discoveries and Progress Towards Planet Occurrence Rates in Kepler, K2, and TESS" Extreme Solar Systems VI, Reykjavik, Iceland, August 19, 2019
- 8. Vanderburg, Andrew et al. "Detecting Exomoons via Doppler Monitoring of Directly Imaged Exoplanets" Bay Area Exoplanets Meeting, Moffett Field, CA, March 1 2019
- 9. Vanderburg, Andrew et al. "Identifying Exoplanets with Deep Learning: Towards Improved Planet Occurrence Rates with Kepler, K2, and TESS" 233<sup>rd</sup> American Astronomical Society Meeting, Seattle, WA, January 9, 2019
- 10. Vanderburg, Andrew et al. "Early Results from the TESS Mission" Sagan/Michelson Fellows' Symposium, Pasadena, CA, November 8, 2018
- 11. Vanderburg, Andrew et al. "Planet Occurrence in the M67 Open Cluster" K2 Dwarf Stars and Clusters Workshop, Boston, MA, January 16, 2018
- 12. Vanderburg, Andrew et al. "WASP-47 and the Origin of Hot Jupiters" 231st American Astronomical Society Meeting, National Harbor, MD, January 12, 2018
- 13. Vanderburg, Andrew et al. "WASP-47 and the Origin of Hot Jupiters" Bay Area Exoplanets Meeting, Moffett Field, CA, November 30 2017
- 14. Vanderburg, Andrew et al. "Towards Better Planet Occurrence Rates from Kepler and K2" NASA Sagan/Michelson Fellows Symposium, Pasadena, CA, November 9, 2017
- 15. Vanderburg, Andrew et al. "Precise Stellar Parameters are Crucial for Constraining Transiting Exoplanet Interiors" Know Thy Star, Know Thy Planet Meeting, Pasadena, CA, October 9, 2017
- 16. Vanderburg, Andrew et al. "HARPS-N Observations of K2 Planet Candidates and Planet Masses in the WASP-47 System" Kepler & K2 Science Conference IV, Moffett Field, CA, June 19, 2017
- 17. Vanderburg, Andrew et al. "Precise Masses in the WASP-47 System" 230<sup>th</sup> American Astronomical Society Meeting, Austin, TX, June 8, 2017
- 18. Vanderburg, Andrew et al. "The Past, Present, and Future of Planetary Systems" 229<sup>th</sup> American Astronomical Society Meeting, Grapevine, TX, January 7, 2017
- 19. Vanderburg, Andrew et al. "A Disintegrating Minor Planet Transiting a White Dwarf" Bay Area Exoplanets Meeting, Moffett Field, CA, September 30, 2016.
- 20. Vanderburg, Andrew et al. "Planetary Candidates from the First Year of the K2 Mission" 227<sup>th</sup> American Astronomical Society Meeting, Kissimmee, FL, January 5, 2016

- 21. Vanderburg, Andrew et al. "A Disintegrating Minor Planet Transiting a White Dwarf" K2 Science Conference, Santa Barbara, CA, November 4, 2015.
- 22. Vanderburg, Andrew et al. "Characterizing K2 Planet Discoveries" 225<sup>th</sup> American Astronomical Society Meeting, Seattle, WA, January 5, 2015.

#### Public/Outreach talks

- 1. Vanderburg, Andrew; Zhang, Coco. "Earth 2.0" UW-Madison Astronomy's Virtual Lecture, May. 4, 2021, presented remotely due to COVID-19.
- 2. Vanderburg, Andrew; Christiansen, Jessie, Marchis, Franck. "Strange and Intriguing Exoplanets" SETI Talks, Feb. 17, 2021, presented remotely due to COVID-19, https://www.youtube.com/watch?v=lUzQsCCapRQ.
- 3. Vanderburg, Andrew; Marchis, Franck. "Planet Orbits Stellar Corpse." SETI Live, Sept. 24, 2020, https://www.youtube.com/watch?v=AdfL8QfJdjA
- 4. Vanderburg, Andrew; Macdonald, Ryan; Kozakis, Thea. "White Dwarf Planets Live Q&A" Sept. 20, 2020, Watch online at https://www.youtube.com/watch?v=QM74qgjUvi0
- 5. Vanderburg, Andrew "Putting the Solar System in a Galactic Context." Wisconsin Board of Visitors Meeting, presented remotely due to COVID-19. Sept. 4, 2020.
- 6. Vanderburg, Andrew; Rowden, Pamela; Coughlin, Jeffrey; Steel, Simon. "Kepler 1649c New Earth-Size Planet in the Habitable Zone." SETI Live, April. 21, 2020. https://www.youtube.com/watch?v=TdxrOD0KCOc
- 7. Vanderburg, Andrew "Searching for our nearest planetary neighbors with NASA's TESS Mission." Astronomy on Tap ATX, Austin, TX, Dec. 17, 2019.
- 8. Vanderburg, Andrew (on a panel with Tom Barclay, Natalia Guerrero, and Jennifer Burt). "Hi Neighbor! New Discoveries from NASA's TESS" Intelligent Futures panel at South by Southwest, Austin, TX, March. 14, 2019.
- 9. Vanderburg, Andrew "Searching For Planets (and Life) Beyond Our Own Solar System." Austin Independent School District Science + Mathematics X Conference, Austin, TX, Aug. 1, 2018.
- Vanderburg, Andrew "Using Artificial Intelligence to Find the Number of Earth-like Planets in our Galaxy" McDonald Observatory Special Viewing Night, Ft. Davis, TX, May 23, 2018.
- 11. Vanderburg, Andrew "Using Artificial Intelligence to Find the Number of Earth-like Planets in our Galaxy" McDonald Observatory Special Viewing Night, Ft. Davis, TX, Mar. 26, 2018.
- 12. Vanderburg, Andrew "Using Artificial Intelligence to Find the Number of Earth-like Planets in our Galaxy" McDonald Observatory Board of Visitors Meeting, Austin, TX, Feb. 17, 2018.
- 13. Vanderburg, Andrew "A Disintegrating Minor Planet Transiting a White Dwarf" McDonald Observatory Special Viewing Night, Ft. Davis, TX, Jan. 31, 2018.
- 14. Vanderburg, Andrew "A Disintegrating Minor Planet Transiting a White Dwarf" Amateur Telescope Makers of Boston monthly meeting, Cambridge, MA, Dec. 8, 2016.
- 15. Vanderburg, Andrew "Kepler's Second Chance" SkyScrapers Inc. Astronomical Society of Rhode Island annual AstroAssembly, North Scituate, RI, Oct. 3, 2015.

## **Poster Presentations**

- Vanderburg, Andrew et al. "WASP-47 and the Origin of Hot Jupiters." Frank N. Bash Symposium, Austin, TX, October 2017
- 2. Vanderburg, Andrew et al. "Extracting Precise K2 Photometry." Towards other Earths Conference, Porto, Portugal, September 2014
- 3. Vanderburg, Andrew et al. "Investigating Systematic Errors in Iodine Cell Radial Velocity Measurements." 223<sup>rd</sup> American Astronomical Society Meeting, National Harbor, MD, January 2013

- 4. Vanderburg, Andrew et al. "Improving Radial Velocity Precision for Faint Star Extra-Solar Planet Surveys." 221st American Astronomical Society Meeting, Long Beach, CA, January 2013
- 5. Vanderburg, Andrew et al. "Improving Radial Velocity Precision for Faint Star Extra-Solar Planet Surveys." 2012 Keck Science Meeting, San Diego, CA, September 2012
- 6. Vanderburg, Andrew et al. "An Algorithm to Increase the Spectral Resolution of the TEDI/Triplespec Instrument." 2012 Berkeley Physics Undergraduate Poster Session, Berkeley, CA, April 2012
- 7. Vanderburg, Andrew et al. "An Algorithm to Increase the Usable Spectral Resolution of the TripleSpec/TEDI Instrument." 2011 Berkeley Physics Undergraduate Poster Session, Berkeley, CA, April 2011
- 8. Vanderburg, Andrew "Optimization of B-dot Sensors to Resolve Velocity Skin Effect." Science and Engineering Apprenticeship Program Poster Session, Austin, TX, August 2009

#### **Publications**

#### Refereed/under review (16 first author, 187 total)

- 1. Vanderburg, Andrew et al. "A giant planet candidate transiting a white dwarf" Nature, 585, 363 (2020).
- 2. Vanderburg, Andrew et al. "A Habitable-zone Earth-sized Planet Rescued from False Positive Status" *The Astrophysical Journal Letters*, 893, L27 (2020).
- 3. Vanderburg, Andrew et al. "TESS Spots a Compact System of Super-Earths around the Naked-eye Star HR 858" The Astrophysical Journal Letters, 881, L19 (2019).
- 4. Vanderburg, Andrew et al. "Detecting Exomoons via Doppler Monitoring of Directly Imaged Exoplanets" The Astronomical Journal, 156, 184 (2018).
- 5. Vanderburg, Andrew et al. "Zodiacal Exoplanets in Time (ZEIT). VII. A Temperate Candidate Super-Earth in the Hyades Cluster" *The Astronomical Journal*, 156, 46 (2018).
- 6. Vanderburg, Andrew et al. "Precise Masses in the WASP-47 System" The Astronomical Journal, 154, 237 (2017).
- 7. Vanderburg, Andrew et al. "Two Small Planets Transiting HD 3167" The Astrophysical Journal Letters, 829, L9 (2016).
- 8. Vanderburg, Andrew et al. "Five Planets Transiting a Ninth Magnitude Star" The Astrophysical Journal Letters, 827, L10 (2016).
- 9. Vanderburg, Andrew et al. "Radial velocity planet detection biases at the stellar rotational period" Monthly Notices of the Royal Astronomical Society, 459, 3565 (2016).
- 10. Vanderburg, Andrew et al. "Planetary Candidates from the First Year of the K2 Mission" The Astrophysical Journal Supplement Series, 222, 14 (2016).
- 11. Vanderburg, Andrew et al. "A disintegrating minor planet transiting a white dwarf" Nature, 526, 546 (2015).
- 12. Vanderburg, Andrew et al. "Characterizing K2 Planet Discoveries: A Super-Earth Transiting the Bright K Dwarf HIP 116454" The Astrophysical Journal, 800, 59 (2015).
- 13. Vanderburg, Andrew & Johnson, John Asher. "A Technique for Extracting Highly Precise Photometry for the Two-Wheeled Kepler Mission" *Publications of the Astronomical Society of the Pacific*, 126, 948 (2014).
- 14. Vanderburg, Andrew et al. "The Electrical Specific Action to Melt of Structural Copper and Aluminum Alloys" IEEE Transactions on Plasma Science, 42, 3167 (2014).
- 15. Vanderburg, Andrew et al. "Measurements of Electrical Specific Action to Melt for Brass and Aluminum Alloys" IEEE Transactions on Plasma Science, 41, 2427 (2013).

- 16. Vanderburg, Andrew M. & Stefani, Franc. "Measuring the Armature Position in a Railgun Using Embedded Permanent Magnets" IEEE Transactions on Plasma Science, 39, 466 (2011).
- 17. Venner, Alexander; **Vanderburg, Andrew**; et al. "True masses of the long-period companions to HD 92987 and HD 221420 from Hipparcos-Gaia astrometry" arXiv:2104.13941.
- 18. Rappaport, S.; Vanderburg, A.; et al. "Minimum Orbital Periods of H-Rich Bodies" arXiv:2104.12083.
- 19. de Beurs, Zoe L.; **Vanderburg, Andrew**; et al. "Identifying Exoplanets with Deep Learning. IV. Removing Stellar Activity Signals from Radial Velocity Measurements Using Neural Networks" arXiv:2011.00003.
- 20. Rodriguez, Joseph E.; Vanderburg, Andrew; et al. "The First Habitable-zone Earth-sized Planet from TESS. II. Spitzer Confirms TOI-700 d" The Astronomical Journal, 160, 117 (2020).
- 21. Torres, Guillermo; Vanderburg, Andrew; et al. "Eclipsing Binaries in the Open Cluster Ruprecht 147. III. The Triple System EPIC 219552514 at the Main-sequence Turnoff" *The Astrophysical Journal*, 896, 162 (2020).
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