

Jaren N. Ashcraft

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Research Professional History

NASA Hubble Fellowship Program - Sagan Fellow

Sep. 2024 – Present

UC Santa Barbara

Santa Barbara, CA

- Led study into the limits polarization aberrations impose on HWO exo-Earth yields (Accepted, SPIE JATIS)
- Developed novel method of spatially calibrating polarimeters using automatic differentiation
- Collaborate with NASA JPL to fabricate & measure metasurface polarization aberration compensators
- Co-lead development of observing mode for Roman-CGI to measure polarization aberrations at high contrast
- Lead design study of UV APLCs to enable direct characterization of exoplanet atmospheres with high throughput

NASA Space Technology Graduate Researcher

Aug. 2021 – Aug. 2024

University of Arizona

Tucson, AZ

- Designed and assembled the Space Coronagraph Optical Bench (SCoOB) (Ashcraft+22, SPIE)
- Lead optical designer for quantum key distribution CubeSat payload (Ashcraft+21, SPIE)
- Published open-source implementation of Gaussian Beamlet Decomposition (GBD, Ashcraft+24, SPIE JATIS)
- Derived novel GBD algorithm that minimizes time and memory complexity (Ashcraft+24, Optics Express)
- Developed open-source phase retrieval algorithm for daytime calibration as a Keck Visiting Scholar
- Led precursor polarization aberrations study in advance of HWO (Ashcraft+25, SPIE JATIS)
- Determined sensitivity of 30m-class ELTs to polarization aberrations (Anche+22, Ashcraft+25, A&A)
- Visiting Technologist at: Subaru Telescope, W.M. Keck Observatory, NASA JPL, NASA GSFC

Education

Ph.D., M.S. Optical Sciences

Aug. 2019 – Aug. 2024

University of Arizona, Advised by Dr. Ewan S. Douglas

Tucson, AZ

B.S. Optical Engineering, Cert. Nanoengineering, High Honors

Aug 2015 – May. 2019

University of Rochester, Advised by Dr. Thomas Brown, Brian McIntyre

Rochester, NY

Teaching and Mentorship

- **Akamai Workforce Initiative:** Alumnus of the program from 2016 & 2018. PREP Course instructor during 2024, 2025 programs. Part of ISEE's Professional Development Program for 2025 program.
- **Undergraduate Research Mentor:** Supervised 9 undergraduate research projects in the following research areas: fiber laser development, focal plane wavefront sensing, post-processing, and polarimetry. *Ongoing*
- **Practical Optics Workshop (POW):** President of POW, a program to conduct research-oriented workshops to get practical experience with industry-standard optical modeling tools. *2020-2022*

Free and Open-Source Software

- **Poke:** Open-source platform for integrating ray trace models with diffraction models. Adds both gaussian beamlet decomposition and polarization ray tracing to the optical modeling pipeline. *Lead developer*
- **prism:** A general-purpose, GPU-accelerated, and differentiable physical optics simulation package. Used to model Roman-CGI's Low-order wavefront sensing loop in real time. *Contributor*
- **Katsu:** Mueller matrix and polarimetry simulation with a hot-swappable Jax backend to enable automatic differentiation. Optimized to support high-dimensional polarimeter simulation. *Lead developer*

- *derpy*: Mueller matrix polarimeter testbed motion control, image acquisition, calibration, and data reduction. Currently in use on testbeds at UCSB and NASA JPL. *Lead developer*
- *dygdug*: (formerly *Poi*) Extensions to *prysm* for focal plane wavefront sensing and coronagraph design using algorithmic differentiation and GPU-accelerated optical models. *Lead developer*
- *∂Lux*: General-purpose JAX-based differentiable physical optics modeling software. *Contributor*
- *GRaTeR-JAX*: Differentiable and GPU-accelerated debris disk modeling software based on JAX. *Contributor*

Professional Involvement & Training

- Member of the Roman Community Participation Program Hardware Working Group
- Founding member of the SPIE Optical Design Automation conference committee
- Designated campus colleague at the University of Arizona for leading a phase retrieval working group
- Certified instructor of SYNOPSYS and Ansys Optical Design Software: CODE V, OpticStudio, LightTools
- Design, interferometric optical testing, and testbed alignment lead for the Space Coronagraph Optical Bench

Awards

- **On-Sky Validation of Speckle Area Nulling for Keck**, 2026B Observing Proposal (0.5 nights)
- **GPU-Accelerated Optimization of UV Coronagraphs**, NASA High-End Computing Award (11,900hrs)
- **NASA Hubble Fellowship Program**, 3 year prize fellowship in astronomy (\$314,000)
- **UA Graduate Scholarships in Optical Sciences**, 3 departmental awards (total \$9000)
- **NASA Space Technology Graduate Research Opportunity**, 4 year graduate fellowship (\$215,000)
- **John Hayes and Jane Quale Endowed Scholarship in Optical Sciences**, graduate fellowship (\$24,000)

First Author Refereed Publications

1. "Connecting polarization aberrations to exoplanet yield calculations for HWO" **J. N. Ashcraft**, S. D. Will et al. 2026 *SPIE JATIS*
2. "Katsu: A Python package for Mueller and Stokes simulation and polarimetry" **J. N. Ashcraft** 2025 *Journal of Open Source Software*
3. "Polarization aberrations in next-generation Giant Segmented Mirror Telescopes (GSMTs)-II. Influence of segment-to-segment coating variations on high-contrast imaging and polarimetry" **J. N. Ashcraft** et al. 2025 *Astronomy & Astrophysics*
4. "Comparison of polarization aberrations from existing mirror coatings for coronagraphic imaging of habitable worlds" **J. N. Ashcraft** et al. 2025 *SPIE JATIS*
5. "A generalized expression for accelerating beamlet decomposition simulations" **J. N. Ashcraft** et al. 2024 *Optics Express*
6. "Hybrid propagation physics for the design and modeling of astronomical observatories: a coronagraphic example" **J. N. Ashcraft** et al. 2023 *SPIE JATIS*

Contributed Refereed Publications

1. "Shining a Visible Light on Keck-II Adaptive Optics: Characterizing the visible light performance of Keck-II AO with the ORKID instrument," J. Fowler et al. (incl. **J. N. Ashcraft**) *In Review SPIE JATIS*
2. "Metasurfaces for Polarization Aberration Correction for the Habitable Worlds Observatory," D. Shanks, **J. N. Ashcraft**, et al. *In Review SPIE JATIS*
3. "PIRATES: a machine-learning framework for optical polarized, interferometric image reconstruction", L. Lilley et al. (incl. **J. Ashcraft**) *2025 SPIE JATIS*
4. "Fundamental limits to coronagraphic wavefront correction with pairwise-type estimation in the presence of polarization aberrations," S. D. Will, **J. N. Ashcraft** et al. *2025 Optics Express*
5. "Tolerancing and manufacture of microfabricated pinholes: creating high-quality wavefronts for improved high-contrast imaging testbed performance," E. Jenkins et al. (incl. **J. N. Ashcraft**) *2025 SPIE JATIS*
6. "Demonstrations of adjoint electric field conjugation for a vortex coronagraph" K. Milani et al. (incl. **J. N. Ashcraft**) *2025 SPIE JATIS*
7. "Visible-light high-contrast imaging and polarimetry with SCExAO/VAMPIRES" M. Lucas et al. (incl. **J. N. Ashcraft**) *2024 PASP*
8. "Simulation of high-contrast polarimetric observations of debris disks with the roman coronagraph instrument" R. M. Anche et al. (incl. **J. N. Ashcraft**) *2023 PASP*
9. "Polarization aberrations in next-generation giant segmented mirror telescopes (GSMTs)-I. Effect on the coronagraphic performance" R. M. Anche et al. (incl. **J. N. Ashcraft**) *Astronomy & Astrophysics*
10. "Sensitivity of the Roman coronagraph instrument to exozodiacal dust" E. S. Douglas et al. (incl. **J. N. Ashcraft**) *2022 PASP*
11. "Advances in optical engineering for future telescopes" D. Kim et al. incl. **J. N. Ashcraft** 2021 *Opto-Electronic Advances*

First-author Conference Proceedings

1. **Jaren N. Ashcraft**, Jessica Gersh-Range, Roser Juanola-Parramon, A.J. Riggs, Ramya Anche, Brandon Dube, Saraswathi Kalyani, Kyle van Gorkom, "Strategies for maximizing throughput in high-contrast ultraviolet apodized pupil lyot coronagraphs," Proc. SPIE AT+I 2026
2. **Jaren N. Ashcraft** "The Diffraction Drag Race: Unpacking the unpacking the accelerators of physical optics engines," Proc. SPIE O+P 2026
3. **Jaren N. Ashcraft**, Scott D. Will, Ewan S. Douglas, John Krist, Brian Kern, Maxwell A. Millar Blanchaer, Breann Sitarski, Chris Stark, "Connecting Polarization to Exoplanet Yield Calculations for HWO," Proc. SPIE O+P 2025
4. **Jaren N. Ashcraft**, Ewan S. Douglas, Ramya M. Anche, et al. "The space coronagraph optical bench (SCoOB): 3. Mueller matrix polarimetry of a coronagraphic exit pupil", Proc. SPIE 13092, Space Telescopes and Instrumentation 2024: Optical, Infrared, and Millimeter Wave, 130926K (23 Aug 2024); <https://doi.org/10.1117/12.3019204>
5. **Jaren N. Ashcraft**, Sebastiaan Y. Haffert, Laird Close, et al. "High-contrast imaging at first light of the GMT: optimized coatings enabling high-throughput observations for GMagAO-X", Proc. SPIE 13100, Advances in Optical and Mechanical Technologies for Telescopes and Instrumentation VI, 1310065 (26 Aug 2024); <https://doi.org/10.1117/12.3020707>

6. **Jaren N. Ashcraft**, Maxwell A. Millar-Blanchaer, Ewan S. Douglas, et al. "Theoretical limits on polarization differential imaging for the GSMTs imposed by polarization aberrations", Proc. SPIE 13099, Modeling, Systems Engineering, and Project Management for Astronomy XI, 130992F (23 Aug 2024); <https://doi.org/10.1117/12.3019195>
7. **Jaren N. Ashcraft**, Ewan S. Douglas, Daewook Kim, A. J. E. Riggs, Ramya Anche, Trent Brendel, Kevin Derby, Brandon D. Dube, Quinn Jarecki, Emory Jenkins, Kian S. Milani, "Poke: an open-source, ray-based physical optics platform," Proc. SPIE 12664, Optical Modeling and Performance Predictions XIII, 1266404 (28 September 2023); <https://doi.org/10.1117/12.2678001>
8. **Jaren N. Ashcraft**, Trenton Brendel, Simran Agarwal, Joel Berkson, Alexander D. Hedglen, Hyukmo Kang, Yanqi Zhang, Heejoo Choi, Daewook Kim, "The practical optics workshop: educating the optical engineers of tomorrow," Proc. SPIE 12213, *Optics Education and Outreach VII*, 122130H (3 October 2022); <https://doi.org/10.1117/12.2632801>
9. **Jaren N. Ashcraft**, Heejoo Choi, Ewan S. Douglas, Kevin Derby, Kyle Van Gorkom, Daewook Kim, Ramya Anche, Alex Carter, Olivier Durney, Sebastiaan Haffert, Lori Harrison, Maggie Kautz, Jennifer Lumbres, Jared R. Males, Kian Milani, Oscar M. Montoya, George A. Smith, "The space coronagraph optical bench (SCoOB): 1. Design and assembly of a vacuum-compatible coronagraph testbed for spaceborne high-contrast imaging technology," Proc. SPIE 12180, Space Telescopes and Instrumentation 2022: Optical, Infrared, and Millimeter Wave, 121805L (27 August 2022); <https://doi.org/10.1117/12.2628855>
10. **Jaren N. Ashcraft**, Heejoo Choi, Sara R. Heap, Robert A. Woodruff, Dae Wook Kim, "Cosmic evolution through UV surveys (CETUS): point spread function analysis of three mirror anastigmat telescope," Proc. SPIE 11820, *Astronomical Optics: Design, Manufacture, and Test of Space and Ground Systems III*, 118200H (24 August 2021); <https://doi.org/10.1117/12.2598879>
11. **Jaren N. Ashcraft**, Ewan S. Douglas, Daewook Kim, George A. Smith, Kerri Cahoy, Tom Connors, Kevin Z. Derby, Victor Gasho, Kerry Gonzales, Charlotte E. Guthery, Geon Hee Kim, Corwynn Sauve, Paul Serra, "The versatile CubeSat Telescope: going to large apertures in small spacecraft," Proc. SPIE 11819, *UV/Optical/IR Space Telescopes and Instruments: Innovative Technologies and Concepts X*, 1181904 (20 August 2021); <https://doi.org/10.1117/12.2594884>
12. **Jaren N. Ashcraft**, Ewan S. Douglas, "An open-source Gaussian beamlet decomposition tool for modeling astronomical telescopes," Proc. SPIE 11450, *Modeling, Systems Engineering, and Project Management for Astronomy IX*, 114501D (13 December 2020); <https://doi.org/10.1117/12.2561921>

Contributed Conference Proceedings

1. Ryan Hersey et al. (**incl. Jaren N. Ashcraft**) "Results from early prototyping of a metasurface polarization aberration corrector (PAC) for large observatories," Proc SPIE AT+I 2026
2. Jayke Nguyen et al. (**incl. Jaren N. Ashcraft**) "Enhanced image sharpening for Keck AO using gradient-based phase retrieval techniques," Proc SPIE AT+I 2026
3. Thomas McIntosh et al. (**incl. Jaren N. Ashcraft**) "Updating the SCExAO/CHARIS polarimetric calibration following the Nasmyth beam-switcher upgrade," Proc SPIE AT+I 2026
4. Kyle van Gorkom et al. (**incl. Jaren N. Ashcraft**) "The Space Coronagraph Optical Bench (SCoOB): 11. status of ongoing upgrades and vacuum performance," Proc SPIE AT+I 2026
5. Saraswathi Kalyani et al. (**incl. Jaren N. Ashcraft**) "The Space Coronagraph Optical Bench (SCoOB): 10. dark zone maintenance for space-based high contrast imaging testbed," Proc SPIE AT+I 2026
6. Kevin Z. Derby et al. (**incl. Jaren N. Ashcraft**) "The Space Coronagraph Optical Bench (SCoOB): 9. improvements to adjoint electric field conjugation and a demonstration in broadband light," Proc SPIE AT+I 2026

7. Skyler Palatnick, Maxwell A. Millar-Blanchaer, J. Kent Wallace, et al. (incl. **Jaren N. Ashcraft**) "In-lab demonstration of a metasurface scalar-vortex coronagraph in a coronagraphic testbed", Proc. SPIE 13627, Techniques and Instrumentation for Detection of Exoplanets XII, 136271C (2 Mar 2026); <https://doi.org/10.1117/12.3064107>
8. Ramya M. Anche et al. incl. **Jaren N. Ashcraft**, "The Space Coronagraph Optical Bench (SCoOB): 8.: end-to-end numerical modeling of the testbed to estimate the contrast limits," Proc. SPIE 13627, Techniques and Instrumentation for Detection of Exoplanets XII, 1362726 (18 Sept 2025); <https://doi.org/10.1117/12.3065695>
9. Kian Milani, Kyle Van Gorkom, Christopher B. Mendillo, et al. incl. **Jaren N. Ashcraft**, "The Space Coronagraph Optical Bench (SCoOB): 6. demonstration of Lyot low order wavefront control combined with high order wavefront control using a vortex coronagraph", Proc. SPIE 13627, Techniques and Instrumentation for Detection of Exoplanets XII, 1362724 (18 Sept 2025); <https://doi.org/10.1117/12.3063620>
10. Joshua Weiland Potter, Jules Fowler, Rebecca Jensen-Clem, et al (incl. **Jaren N. Ashcraft**). "Optimization of sequential phase diversity", Proc. SPIE 13627, Techniques and Instrumentation for Detection of Exoplanets XII, 136271Q (18 Sept 2025); <https://doi.org/10.1117/12.3063948>
11. Kevin Z. Derby et al. incl. **Jaren N. Ashcraft**, "Fine alignment and wavefront maintenance of a three-mirror anastigmat using full-field phase retrieval with algorithmic differentiation," Proc. SPIE 13623, UV/Optical/IR Space Telescopes and Instruments: Innovative Technologies and Concepts XII, 136230E (18 Sept 2025); <https://doi.org/10.1117/12.3065359>
12. William Melby, Manxuan Zhang, Maxwell A. Millar-Blanchaer, Anthony D. Manni, Douglas S. Hobbs, **Jaren N. Ashcraft**, "Half-wave plate characterizations for the Keck NIRC2 polarimetry mode," Proc. SPIE 13096, Ground-based and Airborne Instrumentation for Astronomy X, 1309637 (18 Jul 2024); <https://doi.org/10.1117/12.3019556>
13. Manxuan Zhang, Maxwell A. Millar-Blanchaer, Boris Safanov, **Jaren N. Ashcraft**, "Developing an instrumental polarization characterization routine for SCExAO VAMPIRES," Proc. SPIE 13096, Ground-based and Airborne Instrumentation for Astronomy X, 1309630 (29 Jul 2024); <https://doi.org/10.1117/12.3019283>
14. Miles Lucas, Barnaby Norris, Olivier Guyon, Michael Bottom et al (incl. **Jaren N. Ashcraft**) "Visible-light high-contrast imaging polarimetry at Subaru," Proc. SPIE 13096, Ground-based and Airborne Instrumentation for Astronomy X, 130962Z (20 Aug 2024); <https://doi.org/10.1117/12.3016188>
15. Lucinda Lilley, Barnaby Norris, Peter Tuthill, et al. (incl. **Jaren N. Ashcraft**) "Polarimetric, non-redundant aperture masking with next generation VAMPIRES: new instrumental capabilities, scientific outcomes, and image reconstruction techniques", Proc. SPIE 13095, Optical and Infrared Interferometry and Imaging IX, 1309510 (28 Aug 2024); <https://doi.org/10.1117/12.3018210>
16. Ramya M. Anche, Kian Milani, David Doelman, et al. (incl. **Jaren N. Ashcraft**) "High-contrast polarimetric observations of debris disks through the Roman Coronagraph Instrument", Proc. SPIE 13092, Space Telescopes and Instrumentation 2024: Optical, Infrared, and Millimeter Wave, 1309257 (23 Aug 2024); <https://doi.org/10.1117/12.3020643>
17. Ramya M. Anche, Kyle Van Gorkom, **Jaren N. Ashcraft**, Ewan S. Douglas, Emory Jenkins, Sebastiaan Y. Haffert, Maxwell A. Millar-Blanchaer, "The space coronagraph optical bench (SCoOB): 5. End-to-end simulations of polarization aberrations," Proc. SPIE 13092, Space Telescopes and Instrumentation 2024: Optical, Infrared, and Millimeter Wave, 130926M (23 Aug 2024); <https://doi.org/10.1117/12.3020630>
18. Kyle Van Gorkom, Ewan S. Douglas, Kian Milani, et al. (incl. **Jaren N. Ashcraft**) "The space coronagraph optical bench (SCoOB): 4. Vacuum performance of a high contrast imaging testbed", Proc. SPIE 13092, Space Telescopes and Instrumentation 2024: Optical, Infrared, and Millimeter Wave, 1309222 (23 Aug 2024); <https://doi.org/10.1117/12.3020654>

19. Ramya M. Anche, Sebastiaan Y. Haffert, **Jaren N. Ashcraft**, Kian Milani, Kyle Van Gorkom, Kevin Derby, Ewan S. Douglas, Maxwell A. Millar-Blanchaer, "Estimation of polarization aberrations and their effect on the coronagraphic performance for future space telescopes," Proc. SPIE 12680, Techniques and Instrumentation for Detection of Exoplanets XI, 126800R (5 October 2023); <https://doi.org/10.1117/12.2677486>
20. Ramya M. Anche, Grant Williams, Hill Taylor, Chris Packham, Daewook Kim, **Jaren N. Ashcraft**, Ewan S. Douglas, "Polarimetric modeling and assessment of science cases for Giant Magellan Telescope-Polarimeter (GMT-Pol)," Proc. SPIE 12690, Polarization Science and Remote Sensing XI, 126900F (3 October 2023); <https://doi.org/10.1117/12.2676777>
21. Manxuan Zhang, Maxwell Millar-Blanchaer, Boris Safonov, Miles Lucas, Lucinda Lilley, **Jaren Ashcraft**, Barnaby Norris, Julien Lozi, Olivier Guyon, Michael Bottom, "Characterizing the instrumental polarization of SCExAO VAMPIRES," Proc. SPIE 12680, Techniques and Instrumentation for Detection of Exoplanets XI, 126800S (5 October 2023); <https://doi.org/10.1117/12.2677599>
22. Christopher B. Mendillo, **Jaren N. Ashcraft**, Kevin Zhang Derby, Ewan S. Douglas, Daewook Kim, Jared Males, "Reflective lyot stop low-order wavefront control for future large space telescope coronagraphs," Proc. SPIE 12680, Techniques and Instrumentation for Detection of Exoplanets XI, 126802E (5 October 2023); <https://doi.org/10.1117/12.2677654>
23. Kevin Z. Derby, Sebastiaan Haffert, **Jaren Ashcraft**, Kian Milani, Heejoo Choi, Young-Sik Kim, Laird Close, Christopher Mendillo, Supriya Chakrabarti, Gregory Allan, Leonid Pogorelyuk, Kerri Cahoy, Mamadou N'Diaye, Daewook Kim, Jared Males, Ewan Douglas, "Tolerance analysis of a self-coherent camera for wavefront sensing and dark hole maintenance," Proc. SPIE 12180, *Space Telescopes and Instrumentation 2022: Optical, Infrared, and Millimeter Wave*, 1218069 (27 August 2022); <https://doi.org/10.1117/12.2629578>
24. Kyle Van Gorkom, Ewan S. Douglas, **Jaren N. Ashcraft**, Sebastiaan Haffert, Daewook Kim, Heejoo Choi, Ramya M Anche, Jared R. Males, Kian Milani, Kevin Derby, Lori Harrison, Olivier Durney, "The space coronagraph optical bench (SCoOB): 2. Wavefront sensing and control in a vacuum-compatible coronagraph testbed for spaceborne high-contrast imaging technology," Proc. SPIE 12180, *Space Telescopes and Instrumentation 2022: Optical, Infrared, and Millimeter Wave*, 121805M (27 August 2022); <https://doi.org/10.1117/12.2630704>
25. Kevin Z. Derby, James B. Breckinridge, James E. Harvey, Tony Hull, Charles F. Lillie, **Jaren N. Ashcraft**, Heejoo Choi, Ewan S. Douglas, Daewook Kim, "Curved primary aperture segmentation enabling a robust quasi-Airy pattern point spread function," Proc. SPIE 12188, *Advances in Optical and Mechanical Technologies for Telescopes and Instrumentation V*, 121880N (29 August 2022); <https://doi.org/10.1117/12.2628819>
26. Ramya M. Anche, Ewan S. Douglas, Kian Milani, **Jaren Ashcraft**, John Debes, "Simulations of polarimetric observations of debris disks through the Roman Coronagraph Instrument," Proc. SPIE 12180, *Space Telescopes and Instrumentation 2022: Optical, Infrared, and Millimeter Wave*, 1218056 (27 August 2022); <https://doi.org/10.1117/12.2629497>
27. Kian Milani, Ewan S. Douglas, **Jaren Ashcraft**, "Updated simulation tools for Roman coronagraph PSFs," Proc. SPIE 11819, *UV/Optical/IR Space Telescopes and Instruments: Innovative Technologies and Concepts X*, 118190E (20 August 2021); <https://doi.org/10.1117/12.2594807>
28. Paul Serra, Ondrej ierny, William Kammerer, Ewan S. Douglas, Dae Wook Kim, **Jaren N. Ashcraft**, George Smith, Charlotte Guthery, Tom Vergoossen, Alexander Lohrmann, Robert Bedington, Chithrabhanu Perumangatt, Alexander Ling, Kerri Cahoy, "Optical front-end for a quantum key distribution cubesat," Proc. SPIE 11852, *International Conference on Space Optics ICSO 2020*, 118523C (11 June 2021); <https://doi.org/10.1117/12.2599542>
29. Ewan S. Douglas, **Jaren N. Ashcraft**, Ruslan Belikov, John Debes, Jeremy Kasdin, John Krist, Brianna I. Lacy, Bijan Nemati, Kian Milani, Leonid Pogorelyuk, A.J. Eldorado Riggs, Dmitry Savransky, Dan Sirbu, "A review of simulation and performance modeling tools for the Roman coronagraph instrument," Proc. SPIE

11443, *Space Telescopes and Instrumentation 2020: Optical, Infrared, and Millimeter Wave*, 1144338 (16 December 2020); <https://doi.org/10.1117/12.2561960>

30. Erin R. Maier, Ewan S. Douglas, Dae Wook Kim, Kate Su, **Jaren N. Ashcraft**, James B. Breckinridge, Heejoo Choi, Elodie Choquet, Thomas E. Connors, Olivier Durney, Kerry L. Gonzales, Charlotte E. Guthery, Christian A. Haughwout, James C. Heath, Justin Hyatt, Jennifer Lumbres, Jared R. Males, Elisabeth C. Matthews, Kian Milani, Oscar M. Montoya, Mamadou N'Diaye, Jamison Noenickx, Leonid Pogorelyuk, Garreth Ruane, Glenn Schneider, George A. Smith, Christopher C. Stark, "Design of the vacuum high contrast imaging testbed for CDEEP, the Coronagraphic Debris and Exoplanet Exploring Pioneer," Proc. SPIE 11443, *Space Telescopes and Instrumentation 2020: Optical, Infrared, and Millimeter Wave*, 114431Y (13 December 2020); <https://doi.org/10.1117/12.2560878>
31. Yi-Ting Feng, **Jaren N. Ashcraft**, James B. Breckinridge, James E. Harvey, Ewan S. Douglas, Heejoo Choi, Charles Lillie, Tony Hull, Dae Wook Kim, "Topological pupil segmentation and point spread function analysis for large aperture imaging systems," Proc. SPIE 11568, *AOPC 2020: Optics Ultra Precision Manufacturing and Testing*, 115680I (5 November 2020); <https://doi.org/10.1117/12.2575809>
32. Jake R. Rosvold, Luis Alemán Castañeda, **Jaren N. Ashcraft**, Dylan Beckman, Maximillian C. Bruggeman, Pellegrino Conte, Shenghan Gao, Qi Jin, Nicholas Kochan, Zilong Li, Yuxuan Liu, Matthew Page, John Piotrowski, Jordan Rabinowitz, Colleen Stone, Julie L. Bentley, "Comparing optical design complexity of high zoom ratio lenses within the VIS, SWIR, and LWIR," Proc. SPIE 11106, *Zoom Lenses VI*, 111060B (9 September 2019); <https://doi.org/10.1117/12.2528875>