
Christopher C. Stark

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Research Interests

Mission concept planning & science yield optimization; debris disk modeling, detection, and observation; planet-disk interactions; extra-solar planets; dust dynamics; exozodiacal clouds

Education

Ph.D. Physics	University of Maryland	2010
Thesis: "Decoding Images of Debris Disks"		
Advisor: Dr. Marc J. Kuchner, NASA Goddard Space Flight Center		
B.S. Physics with a Minor in Marketing	University of Northern Iowa	2004

Current Position

Large Strategic Mission Scientist	NASA Goddard Space Flight Center	2020 -
<ul style="list-style-type: none"> <i>Future telescope planning & design trade analysis, science yield estimates, modeling of debris disks and their impact on future missions</i> <i>Constraining debris disk composition, measuring debris disk scattering phase functions, exploring new methods of exozodi detection</i> 		

Previous Positions

Associate Scientist, Instruments Division	STScI	2015 - 2020
JWST Optical Telescope Element commissioning Wavefront Ops Lead, JWST Coronagraph Working Group member, future mission planning & science yield estimates, observing & modeling debris disks to constrain composition and optical properties		
NASA Postdoctoral Program Research Fellow		2013 - 2015
Science yield calculations for future missions, debris disk modeling		
Carnegie Postdoctoral Research Fellow		2010 - 2013

Debris disk detection and modeling, exoplanet detection

GSRP Research Fellow, NASA Goddard Space Flight Center 2005 – 2009

Numerical modeling of exozodiacal clouds and observed debris disks, Advisor: Dr. Marc J. Kuchner

Observations of debris disks with the Keck Interferometer Nuller, Advisor: Dr. Marc J. Kuchner

Research Assistant, NASA Goddard Space Flight Center 2005

Analysis of GLAST anticoincidence detector test data, Advisor: Dr. Steven Ritz

MRSEC Research Fellow, University of Nebraska 2003

Experimental AGFM studies of FePt:C thin films, Advisor: Dr. Ming Lang Yan

Research Assistant, University of Northern Iowa 2002 – 2004

Magnetic properties of mechanically milled alloys, Advisor: Dr. Paul M. Shand

Professional Experience

LUVOIR Science and Technology Definition Team 2018 – 2020

Performing yield calculations, simulating data products, and advising team on how design and operations decisions affect science yield

WFIRST Starshade Rendezvous Mission Concept Study Team 2017 – 2020

Performing yield calculations & exposure time estimates, developing debris disk science case

HabEx Science and Technology Definition Team 2017 – 2020

Performing yield calculations, simulating data products, and advising team on how design and operations decisions affect science yield

LUVOIR/HabEx Exoplanets Standards Team 2016 – 2020

Defining standard yield metrics and performing yield calculations for direct comparisons between mission concepts

JWST Coronagraph Working Group 2016 – 2020

Developing community tools for JWST Coronagraphy, implementing OTE commissioning plans, pipeline development and documentation

ATLAST Mission Concept Science Team Member	2013 – 2015
Target selection, completeness and exposure time calculations, optimization of design to maximize science yield	
Kepler Science Team Collaborator	2011 – 2012
Searching for signs of structured exozodis in Kepler transit light curves	
Keck Interferometer Nuller Key Science Co-Investigator	2008 – 2010
"The KIN Survey of Exozodiacal Dust around Nearby Stars," PI: Dr. Eugene Serabyn	
"Follow-up Observations of Circumstellar Disks with the KIN," PI: Dr. Marc J. Kuchner	
Keck Interferometer Nuller Shared Risk Science Team	2006 – 2008
"Circumstellar Disk Detection with the Keck Nuller," PI: Dr. Wesley A. Traub	

Funded Proposals

- PI, "Revealing Structure in the HD 53143 Debris Disk," HST Cycle 28 GO Proposal
- Co-I, "Imaging Planet-Disk Interactions in the Beta Pictoris Disk," HST Cycle 28 GO Proposal, PI: Kevin Wagner
- Co-I, "Upgrading the Gemini Planet Imager using Coronagraph Mask Optimizations Developed for LUVVOIR", STScI DDRF Proposal, PI: Marshall Perrin
- Co-I, "Time Domain Coronagraphy: Diagnosing the Stripping of AU Mic's Debris Disk," HST Cycle 27 GO Proposal, PI: John Wisniewski
- PI, "Determining the Dynamical Origin of the Disk Structure Around HD 53143", ALMA Cycle 6 Proposal, PI: C. C. Stark
- Co-I, "The Virtual Planetary Laboratory: Advancing the Search for Life Beyond the Solar System", NAI Can-8 Proposal, PI: Victoria Meadows

Debris disk modeling, studies of yield sensitivity to changes in observation strategy

- Co-I, "Debris Disk Dust Characterization Through Spectral Types: Deep Visible-Light Imaging of Nine Systems", HST Cycle 25 GO Proposal, PI: Elodie Choquet

Debris disk image analysis and modeling

- Co-I, "Imaging the predicted asteroid belt analogue around Epsilon Eridani", HST Cycle 25 GO Proposal, PI: Kerri Cahoy
Debris disk image analysis and modeling
- Co-I, "Harnessing the Power of the WFIRST-Coronagraph: a Coordinated Plan for Exoplanet and Disk Science", WFIRST SIT, PI: Margaret Turnbull
Debris disk modeling and exoplanet yield calculations to inform WFIRST CGI design, maximize science return, and produce community data analysis challenge
- Co-I, "Segmented Coronagraph Design & Analysis," JPL Contract, PI: Remi Soummer
Exoplanet yield calculations to enable mask optimization for Hybrid Lyot Coronagraph with apodized pupil for future segmented apertures
- Co-I, "Characterizing Dusty Debris in Exoplanetary Systems", Gemini 2015B LLP Proposal, PI: Christine Chen
Debris disk image analysis and modeling
- Co-I, "Rocky Planet Habitability: Insights from Solar System Climate Dynamics Through Time," NASA Nexus for Exoplanet System Science, PI: Anthony D. Del Genio
Debris disk modeling and image analysis to determine the detectability of a wide variety of exoplanets generated by global climate models in the presence of dust; determination of inputs to ATLAST design reference mission code for exoEarth yield estimation
- PI, "Confirming the Recent Collisional Destruction of an Extra-Solar Pluto," ALMA Cycle 2, PI: Christopher Stark
Observations of the HD 181327 debris disk to determine the source of disk asymmetries consistent with a recent massive collision and confirm the scattering phase function measured from HST STIS observations
- Co-I, "Decoding Debris System Substructures: Imprints of Planets/Planetesimals and Signatures of Extrinsic Influences on Material in Ring-Like Disks," HST Cycle 22 GO Proposal, PI: Glenn Schneider
Data analysis, image deprojection, and modeling of debris disks imaged through high-contrast techniques
- Co-I, "SpiKeS: Spitzer Kepler Survey," Spitzer Space Telescope Cycle 10, PI: Michael Werner
Identification of IR debris disk excesses in the full Kepler field of view
- Co-I, "SMACK: A New Tool for Modeling Debris Disks," HST Cycle 21 Theory Proposal, PI: Marc Kuchner
Creation of a new publicly available dynamical modeling tool for debris disks

- Co-I, "Small SpiKeS: Small Spitzer Kepler Survey," Spitzer Space Telescope Cycle 9, PI: Michael Werner
Identification of IR debris disk excesses in a subset of the Kepler field of view
- Co-I, "EXCEDE: EXoplanetary Circumstellar Environments and Disk Explorer," 2011 NASA Explorer Program, PI: Glenn Schneider
Production of model disk images for mission simulation and scientific yield
- Co-I, "Imaging Disk-Planet Interactions in the Beta Pictoris Disk," HST Cycle 19 GO Proposal, PI: Daniel Apai
Dynamical modeling of any variability observed in the Beta Pic disk
- Co-I, "Probing for Exoplanets Hiding in Dusty Debris Disks: Inner (<10 AU) Disk Imaging, Characterization, and Exploration," HST Cycle 18 GO Proposal, PI: Glenn Schneider
Data analysis, image deprojection, and modeling of debris disks imaged through high-contrast techniques
- Co-I, "Dynamical Models of the Zodiacal Cloud with Grain-Grain Collisions," 2010 Planetary Geology and Geophysics Proposal, PI: Marc J. Kuchner
Development of collisional modeling algorithms, modeling dynamical and collisional state of the zodiacal cloud and its dust sources, simultaneously fitting dynamical collisional models to multiple zodiacal cloud data sets

Awards & Honors

STScI Individual Achievement Award (Exoplanet Yields)	STScI	2019
NASA Group Achievement Award (Astrophysics Large Mission Study Teams)	NASA	2019
STScI Achievement Award (JWST OTIS Testing)	STScI	2018
"Bravo" for Telescopes Team OTIS Support	STScI	2017
"Bravo" for Planetary Society Event	STScI	2017
STScI Achievement Award (Coronagraph Visibility Tool)	STScI	2017
Astrophysics Science Division Peer Award	NASA GSFC	2014
NASA Postdoctoral Program Fellowship	NASA GSFC	2013 – 2016
Carnegie Research Fellowship	Carnegie DTM	2010 – 2013
Astrophysics Science Division Peer Award	NASA GSFC	2009
NASA Graduate Student Research Fellowship	NASA GSFC	2006 – 2009
Hartman Travel Grant	AAS DPS	2009

Student Stipend Award	AAS DDA	2007
Alumni Merchant Scholarship	U. of Northern Iowa	2004 & 2006
Purple & Old Gold Award for Meritorious Achievement in Physics	U. of Northern Iowa	2004
Materials Research Science & Engineering Center Fellowship	U. of Nebraska	2003
McKay Science, Math, and Technology Scholarship	U. of Northern Iowa	2002
Science Symposium Physics Scholarship	U. of Northern Iowa	2001
Eagle Scout Award		1999

Talks

235 th AAS Meeting, Honolulu, HI	Jan 2020
Special Seminar, U. Michigan, Ann Arbor, MI	Nov 2019
Astronomy Colloquium, The Ohio State University, Columbus, OH (Invited)	Nov 2019
Astronomy Colloquium, Notre Dame, South Bend, IN (Invited)	Nov 2019
Special Seminar, U. Chicago, Chicago, IL	Nov 2019
GPI LLP Debris Disks Meeting, STScI, Baltimore, MD	Oct 2019
WFIRST Outreach Session @ 234 th AAS Meeting, St. Louis, MO	Jun 2019
HabEx Splinter Session @ 234 th AAS Meeting, St. Louis, MO	Jun 2019
Life in the Universe Workshop, JHU, Baltimore, MD	May 2019
Chesapeake Bay Area Exoplanets Meeting, JHU APL, Columbia, MD	May 2019
Remote Occulter Workshop, NASA GSFC, Greenbelt, MD (Invited)	May 2019
233 rd AAS Meeting, Washington, DC	Jan 2018
HabEx Splinter Session @ 233 rd AAS Meeting, Washington, DC	Jan 2018
AGU Fall Meeting, Washington, DC	Dec 2018
Comparative Climatology of Terrestrial Planets III, Houston, TX	Aug 2018
HabEx Face-to-Face Meeting	May 2018
NAS Exoplanet Science Strategy Committee Meeting, Irvine, CA (Invited)	Apr 2018
LUVOIR ECLIPS / Science & Engineering Tag-ups	Apr 2018
HabEx STDT Meeting	Apr 2018
231 st AAS Meeting, Washington, DC	Jan 2018

US Naval Observatory Colloquium, Washington, DC (Invited)	Sep 2017
Exoplanets Standard Definitions Team Telecon	Jul 2017
LUVOIR/HabEx Joint Face-to-Face Meeting (Invited)	Jul 2017
ExoPAG16 Exoplanet Yield Panelist (Invited)	Jun 2017
JWST Proposal Planning Workshop (Invited)	May 2017
HabEx Face-to-Face Meeting (Invited)	Apr 2017
LUVOIR/HabEx Joint Face-to-Face Meeting (Invited)	Nov 2016
National Capital Area Disks Meeting, Carnegie DTM, Washington, DC	Jul 2016
SPIE Astronomical Telescopes & Instrumentation	Jun 2016
High Contrast Imaging on Segmented Apertures Workshop (Invited)	May 2016
Northrop Grumman Search for Life Workshop, Redondo Beach, CA (Invited)	Mar 2016
NASA ExoPAG 13, Kissimmee, FL (Invited)	Jan 2016
ATLAST Technical Interchange Meeting, NASA GSFC, Greenbelt, MD	Nov 2015
STScI Science Coffee, Baltimore, MD	Oct 2015
AIAA Space 2015 (talk & panel discussion), Pasadena, CA (Invited)	Aug 2015
Carnegie DTM Seminar, Carnegie DTM, Washington, DC (Invited)	Jun 2015
NASA ExoPAG 12, Chicago, IL (Invited)	Jun 2015
Hot Dust Around Main Sequence Stars, Caltech, Pasadena, CA	May 2015
NASA HQ Science Brown Bag Lunch Talk, Washington, DC (Invited)	Feb 2015
ExoPAG Science Interest Group #1, JPL, Pasadena, CA	Feb 2015
225 th AAS Meeting, Seattle, WA	Jan 2015
ATLAST Technical Interchange Meeting, NASA GSFC, Greenbelt, MD	Dec 2014
AURA Beyond JWST Committee Meeting (Invited)	Sep 2014
Star & Planet Formation Seminar, STScI, Baltimore, MD (Invited)	Aug 2014
JPL Astrophysics Colloquium, Pasadena, CA (Invited)	Jul 2014
Sagan Exoplanet Summer Workshop, Caltech, Pasadena, CA (Invited)	Jul 2014
National Capital Area Disks Meeting, Carnegie DTM, Washington, DC	Jul 2014
“On the Shoulders of Giants: Planets Beyond the Reach of Kepler” AAS Meeting-in-a-Meeting (Invited)	Jun 2014
ATLAST Team Meeting, STScI, Baltimore, MD	Apr 2014
Exoplanet Club, NASA GSFC, Greenbelt, MD	Feb 2014
AURA Beyond JWST Committee Meeting (Invited)	Jan 2014
ATLAST Team Meeting, NASA GSFC, Greenbelt, MD	Jan 2014

223 rd AAS Meeting, National Harbor, MD	Jan 2014
Star & Planet Formation Seminar, STScl, Baltimore, MD (Invited)	Nov 2013
ATLAST Team Meeting, NASA GSFC, Greenbelt, MD (Invited)	Nov 2013
U. of Northern Iowa Physic Colloquium, Cedar Falls, IA (Invited)	Apr 2013
221 st AAS Meeting, Long Beach, CA	Jan 2013
National Capital Area Disks Meeting, STScl, Baltimore, MD	Jul 2012
NASA GSFC Extrasolar Planets Seminar, NASA GSFC, Greenbelt, MD	Sep 2011
Carnegie DTM Seminar, Carnegie DTM, Washington, D.C.	Jun 2011
NASA Exoplanet Exploration Program Analysis Group (ExoPAG) Meeting 4, Alexandria, VA (Invited)	Jun 2011
218 th AAS Meeting, Boston, MA	May 2011
Signposts of Planets Workshop, NASA GSFC, Greenbelt, MD (Invited)	Apr 2011
Computational Astrophysics Seminar, NASA GSFC, Greenbelt, MD (Invited)	Dec 2010
DTM Astronomy Group Meeting, Carnegie DTM, Washington, D.C.	Oct 2010
Advanced School and Workshop on Computational Gravitational Dynamics, Lorentz Center, Leiden, Netherlands (Invited)	May 2010
215 th AAS Meeting, Washington, D.C.	Jan 2010
Solar, Stellar, & Planetary Sciences (SSP) Seminar, Harvard-Smithsonian CfA, Cambridge, MA	Nov 2009
Planetary Astronomy Lunch Series, University of Maryland, College Park, MD	Oct 2009
41 st AAS DPS Meeting, Fajardo, Puerto Rico	Oct 2009
Wunch Talk, Princeton University, Princeton, NJ	Sep 2009
2 nd Exozodiacal Dust Disks and Darwin Meeting, International Space Science Institute, Bern, Switzerland (Invited)	Apr 2009
National Capital Area Disks Meeting, University of Maryland, College Park, MD (Invited)	Jan 2009
Star & Planet Formation Seminar, STScl, Baltimore, MD	Jan 2009
213 th AAS Meeting, Long Beach, CA	Jan 2009
NASA Graduate Student Researchers Program (GSRP) Fellowship Symposium, NASA GSFC, Greenbelt, MD	Sep 2008
Exoplanet Forum, Pasadena, CA	May 2008
National Capital Area Disks Meeting, Carnegie DTM, Washington, D.C.	Dec 2007

Exozodiacal Dust Disks and Darwin Meeting, International Space Science Institute, Bern, Switzerland (Invited)	Aug 2007
The Spirit of Lyot Meeting, UC Berkeley, Berkeley, CA	Jun 2007
38 th AAS DDA Meeting, University of Michigan, Ann Arbor, MI	May 2007
Unjournal Club, University of Maryland, College Park, MD	Apr 2007
Exoplanet Club, NASA GSFC, Greenbelt, MD	Mar 2007
Nearby Resolved Debris Disks Workshop, STScI, Baltimore, MD	Oct 2005

Press

Space.com article "Lego LUVUOIR Space Telescope Debuts at Astronomy Conference"	January 11, 2019
Hubble news release "Hubble Surveys Debris-Strewn Exoplanetary Construction Yards"	November 6, 2014
Featured interview on Naked Astronomy Podcast	October 25, 2010
NASA press release "Dust Models Paint Alien's View of Solar System" picked up by hundreds of media outlets and accompanying video received 100,000+ hits	September 23, 2010
Featured on JPL PlanetQuest home page, regarding observations of 51 Oph disk	October 15, 2009
Featured on NExScI home page, regarding observations of 51 Oph disk	September 24, 2009
Featured in W.M. Keck Observatory press release, regarding observations of 51 Oph disk	September 24, 2009
NASA press release "NASA Supercomputer Shows How Dust Rings Point to Exo-Earths" picked up by 100+ media outlets	October 10, 2008
Debris disk simulation featured on cover of Nature	July 6, 2006

Service

NAS Astro2020 Exoplanets, Astrobiology, and Solar System Science Panel Member	2019 –
ExoPAG Executive Committee Member	2017 –
Consultant and reviewer for NAS Exoplanet Science Strategy Committee and report	2018
External expert for Ph.D. thesis committee: Zachary Draper	2018
Organized Exoplanets Science Interest Group meetings	2018

Consultant for ExoPAG	2016
Consultant for the AURA JWST committee	2014 - 2015
NASA ROSES proposal review committee	2013
Organized and led Carnegie DTM astronomy journal club meetings	2011 - 2012
NASA Postdoctoral Program applications review committee	2011 - 2012
Scientific Organizing Committee & Local Organizing Committee	October 2011
Member for Signposts of Planets Conference	
Scientific Organizing Committee & Local Organizing Committee	April 2011
Member for Signposts of Planets Workshop	
Informal mentor to UMD graduate student Maxime Rizzo	2010
Organized NASA GSFC circumstellar disks group meeting	2006 - 2010
Referee for Astronomy & Astrophysics	
Referee for the Astronomical Journal	
Referee for the Astrophysical Journal	
Referee for the Journal of Astronomical Telescopes, Instruments, and Systems	
Referee for Monthly Notices of the Royal Astronomical Society	
Reviewed NASA Postdoctoral Program proposals	
Reviewed STScI Giacconi and Lasker Fellowship proposals	
Reviewed NASA ROSES proposals	

Outreach

Created LUVOIR web site (luvoirtlescope.org)	2019
Produced and scripted LUVOIR design walkthrough outreach video	2019
Creator of Lego LUVOIR, displayed at NASA's AAS Booth	2019
Produced and scripted LUVOIR "Why Go Big" outreach video	2017
Assisted with development of LUVOIR online exoplanet yield tool	2016
Volunteer Carnegie DTM staffer at USA Science Festival	April 2012
Co-authored cover story for Astronomy Magazine	August 2010
Organized & led tour of NASA GSFC for International OSA Network of Students	September 2009
Judge at Greenbelt Elementary School Science Fair	February 2009
Judge at Physics/Astronomy Spotlight on Graduate Research Competition at the University of Maryland College Park	December 2008

Volunteer NASA staffer at Smithsonian Folk Life Festival	July 2008
Science advisor for Maryland Science Center Planetarium show "Beyond the Planets"	2006
Volunteer physics department staffer at Maryland Day festival at the University of Maryland College Park	2005 & 2006

Publications in Preparation

C. C. Stark et al. "The Scattering Phase Functions of Resolved Debris Disks," to be submitted mid-2020.

Publications in Refereed Journals

C. Chen et al., "Multiband GPI Imaging of the HR 4796A Debris Disk," *ApJ* 898, 55 (2020).

C. C. Stark, C. Dressing, S. Dulz, E. Lopez, M. S. Marley, P. Plavchan, J. Sahlmann, "Toward Complete Characterization: Prospects for Directly Imaging Transiting Exoplanets," *AJ* 159, 286 (2020).

S. D. Dulz, P. Plavchan, J. R. Crepp, **C. C. Stark**, R. Morgan, S. R. Kane, P. Newman, W. Matzko, G. D. Mulders, "Joint Radial Velocity and Direct Imaging Planet Yield Calculations. I. Self-consistent Planet Populations," *ApJ* 893, 122 (2020).

C. A. Grady, J. P. Wisniewski, G. Schneider, A. Boccaletti, A. Gaspar, J. H. Debes, D. C. Hines, C. C. Stark, C. Thalmann, A.-M. Lagrange, J.-C. Augereau, E. Sezestre, J. Milli, Th. Henning, M. J. Kuchner, "The Eroding Disk of AU Mic," *ApJL* 889, 21 (2020).

D. Redding, K. Coste, O. Polanco, C. Pineda, K. Hurd, H. Tseng, S. Martin, R. Morgan, K. Schulz, J. Tesch, E. Cady, M. Rodgers, M. East, **C. C. Stark**, G. Wu, P. Huang, B. Hood, D. Chan, D. Putnam, S. Greene, S. Johnson, J. Benson, "A Habitable Exoplanet Observatory (HabEx) starshade-only architectures," *Proceedings of the SPIE* 11115, 111150V (2019).

J. P. Wisniewski, A. F. Kowalski, J. R. A. Davenport, G. Schneider, C. A. Grady, L. Hebb, K. D. Lawson, J.-C. Augereau, A. Boccaletti, A. Brown, J. H. Debes, A. Gaspar, T. K. Henning, D. C. Hines, M. J. Kuchner, A.-M. Lagrange, J. Milli, E. Sezestre, **C. C. Stark**, C. Thalmann, "High-fidelity Imaging of the Inner AU Mic Debris Disk: Evidence of Differential Wind Sculpting?" *ApJ* 883, 8 (2019).

B. Ren, É. Choquet, M. D. Perrin, G. Duchêne, J. H. Debes, L. Pueyo, M. Rice, C. Chen, G. Schneider, T. M. Esposito, C. A. Poteet, J. J. Wang, S. M. Ammons, M. Ansdell, P. Arriaga, V. P. Bailey, T. Barman, J. Sebastián Bruzzone, J. Bulger, J. Chilcote, T. Cotten, R. J. De Rosa, R. Doyon, M. P. Fitzgerald, K. B. Follette, S. J. Goodsell, B. L. Gerard, J. R. Graham, A. Z. Greenbaum, J. B. Hagan, P. Hibon, D. C. Hines, L.-W. Hung, P. Ingraham, P. Kalas, Q. Konopacky, J. E. Larkin, B. Macintosh, J. Maire, F. Marchis, C. Marois, J. Mazoyer, F. Ménard, S. Metchev, M. A. Millar-Blanchaer, T. Mittal, M. Moerchen, E. L. Nielsen, M. N'Diaye, R. Oppenheimer, D. Palmer, J. Patience, C. Pinte, L. Poyneer, A. Rajan, J. Rameau, F. T. Rantakyö, J.-B. Ruffio, D.

Ryan, D. Savransky, A. C. Schneider, A. Sivaramakrishnan, I. Song, R. Soummer, **C. C. Stark**, S. Thomas, A. Vigan, J. K. Wallace, K. Ward-Duong, S. Wiktorowicz, S. Wolff, M. Ygouf, C. Norman, "An Exo-Kuiper Belt with an Extended Halo around HD 191089 in Scattered Light," *ApJ* 882, 64 (2019).

C. C. Stark, R. Belikov, M. R. Bolcar, E. Cady, B. P. Crill, S. Ertel, T. Groff, S. Hildebrandt, J. Krist, P. D. Lisman, J. Mazoyer, B. Mennesson, B. Nemati, L. Pueyo, B. J. Rauscher, A. J. Riggs, G. Ruane, S. B. Shaklan, D. Sirbu, R. Soummer, K. St. Laurent, N. Zimmerman, "The ExoEarth Yield Landscape for Future Direct Imaging Space Telescopes," *JATIS* 5, 024009 (2019).

M. A. Thompson, A. J. Weinberger, L. D. Keller, J. A. Arnold, **C. C. Stark**, "Studying the Evolution of Warm Dust Encircling BD +20 307 Using SOFIA," *ApJ* 875, 45 (2019).

G. Ruane, A. J. Riggs, C. T. Coker, S. B. Shaklan, E. Sidick, D. Mawet, J. Jewell, K. Balasubramanian, **C. C. Stark**, "Fast linearized coronagraph optimizer (FALCO) IV: coronagraph design survey for obstructed and segmented apertures," *Proceedings of the SPIE* 10698, 106984U (2018).

J. H. Girard, W. Blair, B. Brooks, K. Brooks, R. Brown, H. Bushouse, A. Canipe, C. Chen, M. Correnti, J. B. Hagan, B. Hilbert, D. Hines, J. Leisenring, J. Long, B. Nickson, M. D. Perrin, K. Pontoppidan, L. Pueyo, A. Rajan, A. Riedel, R. Soummer, J. Stansberry, **C. C. Stark**, K. Van Gorkom, B. York, "Making good use of JWST's coronagraphs: tools and strategies from a user's perspective," *Proceedings of the SPIE* 10698, 106983V (2018).

B. Mennesson, J. Debes, E. Douglas, B. Nemati, **C. C. Stark**, J. Kasdin, B. Macintosh, M. Turnbull, M. Rizzo, A. Roberge, N. Zimmerman, K. Cahoy, J. Krist, V. Bailey, J. Trauger, J. Rhodes, L. Moustakas, M. Frerking, F. Zhao, I. Poberezhskiy, R. Demers, "The WFIRST coronagraph instrument: a major step in the exploration of sun-like planetary systems via direct imaging," *Proceedings of the SPIE* 10698, 106982I (2018).

K. Fogarty, J. Mazoyer, K. St. Laurent, R. Soummer, M. N'Diaye, **C. C. Stark**, L. Pueyo, "Optimal deformable mirror and pupil apodization combinations for apodized pupil Lyot coronagraphs with obstructed pupils," *Proceedings of the SPIE* 10698, 106981J (2018).

C.-P. Lajoie, M. D. Perrin, C. Myers, T. Comeau, B. Kulp, D. S. Acton, J. S. Knight, E. Wolf, M. Abernathy, M. Allen, E. A. Barker, C. Hanley, M. Jordan, M. Lallo, H. Livingston, L. Pueyo, J. Scott, J. Stansberry, **C. C. Stark**, D. Zak, "Wavefront sensing and control demo during the cryo-vacuum testing of JWST: exercising the science and operations center," *Proceedings of the SPIE* 10698, 106983T (2018).

K. St. Laurent, K. Fogarty, N. T. Zimmerman, M. N'Diaye, **C. C. Stark**, J. Mazoyer, A. Sivaramakrishnan, L. Pueyo, S. Shaklan, R. Vanderbei, R. Soummer, "Apodized pupil Lyot coronagraphs designs for future segmented space telescopes," *Proceedings of the SPIE* 10698, 106982W (2018).

D. Redding, K. Coste, O. Polanco, C. Pineda, K. Hurd, H. Tseng, J. Quezada, S. Martin, J. Nissen, K. Schulz, J. Tesch, E. Cady, M. Rodgers, M. East, J. Mooney, **C. C. Stark**, "HabEx Lite: a starshade-only habitable exoplanet imager alternative," *Proceedings of the SPIE* 10698, 106980X (2018).

R. K. Kopparapu, E. Hébrard, R. Belikov, N. M. Batalha, G. D. Mulders, **C. C. Stark**, D. Teal, S. Domagal-Goldman, A. Mandell, "Exoplanet Classification and Yield Estimates for Direct Imaging Missions," *ApJ* 856, 122 (2018).

É. Choquet, G. Bryden, M. D. Perrin, R. Soummer, J.-C. Augereau, C. H. Chen, J. H. Debes, E. Gofas-Salas, J. B. Hagan, D. C. Hines, D. Mawet, F. Morales, L. Pueyo, A. Rajan, B. Ren, G. Schneider, **C. C. Stark**, & S. Wolff "HD 104860 and HD 192758: two debris disks newly imaged in scattered-light with HST," arXiv 1801.05424 (2018).

A. Roberge, M. J. Rizzo, A. P. Lincowski, G. N. Arney, **C. C. Stark**, T. D. Robinson, G. F. Snyder, L. Pueyo, N. T. Zimmerman, T. Jansen, E. R. Nesvold, V. S. Meadows, M. C. Turnbull "Finding the Needles in the Haystacks: High-fidelity Models of the Modern and Archean Solar System for Simulating Exoplanet Observations," *PASP*, 129, 124401 (2017).

L. Pueyo, N. Zimmerman, M. Bolcar, T. Groff, **C. C. Stark**, G. Ruane, J. Jewell, R. Soummer, K. St. Laurent, J. Wang, D. Redding, J. Mazoyer, K. Fogarty, R. Juanola-Parramon, S. Domagal-Goldman, A. Roberge, O. Guyon, A. Mandell, "The LUVOIR architecture 'A' coronagraph instrument," *Proceedings of the SPIE* 10398, 103980F (2017).

M. Werner, M. Swain, G. Vasisht, X. Wang, S. Macenka, A. Mandell, S. Domagal-Goldman, J. Green, & **C. C. Stark** "Extension of ATLAST/LUVOIR's capabilities to 5 μm or beyond," *JATIS*, 2, 041205-1 (2016).

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