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 Appointment

Associate Scientist, Instruments Division — STScI — 2015 – present

- *Functional Work in Instruments Division:*
  - *Telescopes Group member, focusing on JWST Optical Telescope Element commissioning*
  - *JWST Coronagraph Working Group member, focusing on coronagraph science use cases, coronagraph pipeline architecture, and JWST commissioning steps*
- *Functional Work in Community Missions Office:*
  - *Future mission planning & science yield estimates, modeling of debris disks and their impact on future missions*
- *Scientific Research:*
  - *Constraining debris disk composition, measuring debris disk scattering phase functions, exploring new methods of exozodi detection*

Professional Experience

LUVOIR Science and Technology Definition Team — 2018 –

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 –

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

HabEx Science and Technology Definition Team 2017 –
Performing yield calculations, simulating data products, and advising team on how design and operations decisions affect science yield

LUVOIR/HabEx Exoplanets Standards Team 2016 –
Defining standard yield metrics and performing yield calculations for direct comparisons between mission concepts

JWST Coronagraph Working Group 2016 –
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

NASA Postdoctoral Program Research Fellow 2014 – 2015
Science yield calculations for future missions, debris disk modeling

Carnegie Postdoctoral Research Fellow 2010 – 2013
Debris disk detection and modeling, exoplanet detection

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

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

Keck Interferometer Nuller Shared Risk Science Team 2006 – 2008
"Circumstellar Disk Detection with the Keck Nuller," PI: Dr. Wesley A. Traub

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

Recent Projects

- 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 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

233rd AAS Meeting, Washington, DC	January 2018
HabEx Splinter Session @ 233rd AAS Meeting, Washington, DC	January 2018
AGU Fall Meeting, Washington, DC	December 2018
Comparative Climatology of Terrestrial Planets III, Houston, TX	August 2018
HabEx Face-to-Face Meeting	May 2018
NAS Exoplanet Science Strategy Committee Meeting, Irvine, CA **(Invited)**	April 2018
LUVOIR ECLIPS / Science & Engineering Tag-ups	April 2018
HabEx STDT Meeting	April 2018
231st AAS Meeting, Washington, DC	January 2018
US Naval Observatory Colloquium, Washington, DC **(Invited)**	September 2017
Exoplanets Standard Definitions Team Telecon	July 2017
LUVOIR/HabEx Joint Face-to-Face Meeting **(Invited)**	July 2017
ExoPAG16 Exoplanet Yield Panelist **(Invited)**	June 2017
JWST Proposal Planning Workshop **(Invited)**	May 2017
HabEx Face-to-Face Meeting **(Invited)**	April 2017
LUVOIR/HabEx Joint Face-to-Face Meeting **(Invited)**	November 2016
National Capital Area Disks Meeting, Carnegie DTM, Washington, DC	July 2016
SPIE Astronomical Telescopes & Instrumentation	June 2016
High Contrast Imaging on Segmented Apertures Workshop **(Invited)**	May 2016
Northrop Grumman Search for Life Workshop, Redondo Beach, CA **(Invited)**	March 2016
NASA ExoPAG 13, Kissimmee, FL **(Invited)**	January 2016
ATLAST Technical Interchange Meeting, NASA GSFC, Greenbelt, MD	November 2015
STScI Science Coffee, Baltimore, MD	October 2015

AIAA Space 2015 (talk & panel discussion), Pasadena, CA **(Invited)**	August 2015
Carnegie DTM Seminar, Carnegie DTM, Washington, DC **(Invited)**	June 2015
NASA ExoPAG 12, Chicago, IL **(Invited)**	June 2015
Hot Dust Around Main Sequence Stars, Caltech, Pasadena, CA	May 2015
NASA HQ Science Brown Bag Lunch Talk, Washington, DC **(Invited)**	February 2015
ExoPAG Science Interest Group #1, JPL, Pasadena, CA	February 2015
225th AAS Meeting, Seattle, WA	January 2015
ATLAST Technical Interchange Meeting, NASA GSFC, Greenbelt, MD	December 2014
AURA Beyond JWST Committee Meeting **(Invited)**	September 2014
Star & Planet Formation Seminar, STScI, Baltimore, MD **(Invited)**	August 2014
JPL Astrophysics Colloquium, Pasadena, CA **(Invited)**	July 2014
Sagan Exoplanet Summer Workshop, Caltech, Pasadena, CA **(Invited)**	July 2014
National Capital Area Disks Meeting, Carnegie DTM, Washington, DC	July 2014
"On the Shoulders of Giants: Planets Beyond the Reach of Kepler" AAS Meeting-in-a-Meeting **(Invited)**	June 2014
ATLAST Team Meeting, STScI, Baltimore, MD	April 2014
Exoplanet Club, NASA GSFC, Greenbelt, MD	February 2014
AURA Beyond JWST Committee Meeting **(Invited)**	January 2014
ATLAST Team Meeting, NASA GSFC, Greenbelt, MD	January 2014
223rd AAS Meeting, National Harbor, MD	January 2014
Star & Planet Formation Seminar, STScI, Baltimore, MD **(Invited)**	November 2013
ATLAST Team Meeting, NASA GSFC, Greenbelt, MD **(Invited)**	November 2013
U. of Northern Iowa Physic Colloquium, Cedar Falls, IA **(Invited)**	April 2013
221st AAS Meeting, Long Beach, CA	January 2013
National Capital Area Disks Meeting, STScI, Baltimore, MD	July 2012
NASA GSFC Extrasolar Planets Seminar, NASA GSFC, Greenbelt, MD	September 2011
Carnegie DTM Seminar, Carnegie DTM, Washington, D.C.	June 2011
NASA Exoplanet Exploration Program Analysis Group (ExoPAG) Meeting 4, Alexandria, VA **(Invited)**	June 2011
218th AAS Meeting, Boston, MA	May 2011
Signposts of Planets Workshop, NASA GSFC, Greenbelt, MD **(Invited)**	April 2011
Computational Astrophysics Seminar, NASA GSFC, Greenbelt, MD **(Invited)**	December 2010
DTM Astronomy Group Meeting, Carnegie DTM, Washington, D.C.	October 2010
Advanced School and Workshop on Computational Gravitational Dynamics, Lorentz Center, Leiden, Netherlands **(Invited)**	May 2010
215th AAS Meeting, Washington, D.C.	January 2010
Solar, Stellar, & Planetary Sciences (SSP) Seminar, Harvard-Smithsonian CfA, Cambridge, MA	November 2009

Planetary Astronomy Lunch Series, University of Maryland, College Park, MD	October 2009
41st AAS DPS Meeting, Fajardo, Puerto Rico	October 2009
Wunch Talk, Princeton University, Princeton, NJ	September 2009
2nd Exozodiacal Dust Disks and Darwin Meeting, International Space Science Institute, Bern, Switzerland **(Invited)**	April 2009
National Capital Area Disks Meeting, University of Maryland, College Park, MD **(Invited)**	January 2009
Star & Planet Formation Seminar, STScI, Baltimore, MD	January 2009
213th AAS Meeting, Long Beach, CA	January 2009
NASA Graduate Student Researchers Program (GSRP) Fellowship Symposium, NASA GSFC, Greenbelt, MD	September 2008
Exoplanet Forum, Pasadena, CA	May 2008
National Capital Area Disks Meeting, Carnegie DTM, Washington, D.C.	December 2007
Exozodiacal Dust Disks and Darwin Meeting, International Space Science Institute, Bern, Switzerland **(Invited)**	August 2007
The Spirit of Lyot Meeting, UC Berkeley, Berkeley, CA	June 2007
38th AAS DDA Meeting, University of Michigan, Ann Arbor, MI	May 2007
Unjournal Club, University of Maryland, College Park, MD	April 2007
Exoplanet Club, NASA GSFC, Greenbelt, MD	March 2007
Nearby Resolved Debris Disks Workshop, STScI, Baltimore, MD	October 2005

Press

Space.com article "Lego LUVOIR 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

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
ExoPAG Executive Committee Member	2017 –
Consultant for ExoPAG	2016
Consultant for the AURA BJWST 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 Member for Signposts of Planets Conference	October 2011
Scientific Organizing Committee & Local Organizing Committee Member for Signposts of Planets Workshop	April 2011
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 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

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 Refereed Journals

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).

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).

C. C. Stark, E. J. Cady, M. Clampin, S. D. Domagal-Goldman, D. Lisman, A. M. Mandell, M. W. McElwain, A. Roberge, T. D. Robinson, D. Savransky, S. B. Shaklan, K. R. Stapelfeldt "A Direct Comparison of ExoEarth Yields for Starshades and Coronagraphs," *Proceedings of the SPIE*, **9904**, 99041U-1 (2016).

C. C. Stark, S. B. Shaklan, D. Lisman, E. J. Cady, D. Savransky, A. Roberge, A. M. Mandell "Maximized ExoEarth Candidate Yields for Starshades," *JATIS*, **2**, 041204-1 (2016).

G. Schneider, C. A. Grady, **C. C. Stark**, A. Gaspar, J. Carson, J. H. Debes, T. Henning, D. C. Hines, H. Jang-Condell, M. J. Kuchner, M. Perrin, T. J. Rodigas, M. Tamura, & J. P. Wisniewski "Deep HST/STIS Visible-light Imaging of Debris Systems around Solar Analog Hosts," *Astronomical Journal*, **152**, 64 (2016).

S. Marino, L., Matrà, **C. C. Stark**, M. C. Wyatt, S. Casassus, G. Kennedy, D. Rodriguez, B. Zuckerman, S. Perez, W. R. F. Dent, M. J. Kuchner, A. M. Hughes, G. Schneider, A. Steele, A. Roberge, J. Donaldson, & E. Nesvold "Exocometary Gas in the HD 181327 Debris Ring," *MNRAS*, **460**, 2933 (2016).

N. T. Zimmerman, M. N'Diaye, K. E. St. Laurent, R. Soummer, L. Pueyo, **C. C. Stark**, A. Sivaramakrishnan, M. Perrin, R. J. Vanderbei, N. J. Kasdin, S. Shaklan, & A. Carlotti "Lyot Coronagraph Design Study for Large, Segmented Space Telescope Apertures," *Proc. of the SPIE*, **9904**, 99041Y-1 (2016).

M. D. Perrin, D. S. Acton, C.-P. Lajoie, J. S. Knight, M. D. Lallo, M. Allen, W. Baggett, E. Barker, T. Comeau, E. Coppock, B. H. Dean, G. Hartig, W. L. Hayden, M. Jordan, A. Jurling, T. Kulp, J. Long, M. W. McElwain, L. Meza, E. P. Nelan, R. Soummer, J. Stansberry, C. C. Stark, R.

Telfer, A. L. Welsh, T. P. Zielinksi, & N. T. Zimmerman "Preparing for JWST Wavefront Sensing and Control Operations," *Proc. of the SPIE*, **9904**, 99040F-1 (2016).

M. Konishi, et al. "Discovery of an Inner Disk Component Around HD 141569A," *Astrophysical Journal*, **818**, 23 (2016).

M. N'Diaye, R. Soummer, L. Pueyo, A. Carlotti, **C. C. Stark**, & M. D. Perrin "Apodized Pupil Lyot Coronagraphs for Arbitrary Apertures. V. Hybrid Shaped Pupil Designs for Imaging Earth-like planets with Future Space Observatories," *Astrophysical Journal*, **818**, 163 (2016).

É. Choquet, et al. "First Images of Debris Disks around TWA 7, TWA 25, HD 35650, and HD 377," *Astrophysical Journal*, **817**, 2 (2016).

M. M. Hedman & **C. C. Stark** "Saturn's G and D rings provide nearly complete measured scattering/phase functions of nearby debris disks," *Astrophysical Journal*, **811**, 67 (2015).

C. C. Stark, A. Roberge, A. Mandell, M. Clampin, S. D. Domagal-Goldman, M. W. McElwain, K. R. Stapelfeldt "Lower Limits on Aperture Size for an ExoEarth-Detecting Coronagraphic Mission," *Astrophysical Journal*, **808**, 149 (2015).

C. C. Stark, M. J. Kuchner, & A. Lincowski "The Pseudo-zodi Problem for Edge-on Planetary Systems," *Astrophysical Journal*, **801**, 128 (2015).

D. Apai, G. Schneider, C. A. Grady, M. C. Wyatt, A.-M. Lagrange, M. J. Kuchner, **C. C. Stark**, & S. H. Lubow "The Inner Disk Structure, Disk-Planet Interactions, and Temporal Evolution in the Beta Pictoris System: A Two-Epoch Corongraphic Study," *Astrophysical Journal*, **800**, 136 (2015)

T. J. Rodigas, **C. C. Stark**, A. Weinberger, J. H. Debes, P. M. Hinz, L. Close, C. Chen, P. S. Smith, J. R. Males, A. J. Skemer, A. Puglisi, K. B. Follette, K. Morzinski, Y.-L. Wu, R. Briguglio, S. Esposito, E. Pinna, A. Riccardi, G. Schneider, & M. Xompero "On the Morphology and Chemical Composition of the HR 4796A Debris Disk," *Astrophysical Journal*, **798**, 96 (2015).

C. C. Stark, A. Roberge, A. Mandell, & T. D. Robinson "Maximizing the ExoEarth Candidate Yield from a Future Direct Imaging Mission," *Astrophysical Journal*, **795**, 122 (2014).

G. Schneider, C. A. Grady, D. C. Hines, **C. C. Stark**, J. H. Debes, J. Carson, M. J. Kuchner, M. D. Perrin, A. J. Weinberger, J. P. Wisniewski, M. D. Silverstone, H. Jang-Condell, T. Henning, B. E. Woodgate, E. Serabyn, A. Moro-Martin, M. Tamura, P. M. Hinz, & T. J. Rodigas "Probing for Exoplanets Hiding in Dusty Debris Disks: Disk Imaging, Characterization, and Exploration with HST/STIS Multi-Roll Coronagraphy," *Astronomical Journal*, **148**, 59 (2014).

C. C. Stark, G. Schneider, A. J. Weinberger, J. H. Debes, C. A. Grady, H. Jang-Condell, & M. J. Kuchner "Revealing Asymmetries in the HD 181327 Debris Disk: A Recent Massive Collision or ISM Warping," *Astrophysical Journal*, **789**, 58 (2014).

B. Jackson, **C. C. Stark**, E. R. Adams, J. Chambers, & D. Deming "A Survey for Very Short-period Planets in the Kepler Data," *Astrophysical Journal*, **779**, 165 (2013).

C. C. Stark, A. P. Boss, A. J. Weinberger, B. K. Jackson, M. Endl, W. Cochran, C. Caldwell, E. Agol, E. Ford, J. Li, K. Ibrahim, & J. Hall "A Search for Exozodis with Kepler," *Astrophysical Journal*, **764**, 195 (2013).

J. Debes, K. Walsh, & **C. C. Stark** "The Link Between Planetary Systems, Dusty White Dwarfs, and Metal Polluted White Dwarfs," *Astrophysical Journal*, **747**, 148 (2012).

C. C. Stark "The Transit Light Curve of an Exozodiacal Dust Cloud," *Astronomical Journal*, **142**, 123 (2011).

R. Millan-Gabet, E. Serabyn, B. Mennesson, W. A. Traub, R. K. Barry, W. C. Danchi, M. Kuchner, **C. C. Stark**, S. Ragland, M. Hrynevych, J. Woillez, K. Stapelfeldt, G. Bryden, M. M. Colavita, A. J. Booth "Exozodiacal Dust Levels for Nearby Main-sequence Stars: A Survey with the Keck Interferometer Nuller," *Astrophysical Journal* **734**, 67 (2011).

M. Reidemeister, A. V. Krivov, **C. C. Stark**, J.-C. Augereau, T. Löhne, & S. Müller "The Cold Origin of the Warm Dust Around ε Eridani," *Astronomy & Astrophysics* **527**, 57 (2011).

M. J. Kuchner & **C. C. Stark** "Collisional Grooming Models of the Kuiper Belt Dust Cloud," *Astronomical Journal* **140**, 1007 (2010).

D. Defrère, O. Absil, R. den Hartog, C. Hanot & **C. Stark** "Nulling Interferometry: Impact of Exozodiacal Clouds on the Performance of Future Life-Finding Space Missions," *Astronomy & Astrophysics* **509**, 9 (2010).

C. C. Stark & M. J. Kuchner "A New Algorithm for Self-Consistent 3-D Modeling of Collisions in Dusty Debris Disks," *Astrophysical Journal* **707**, 543 (2009).

C. C. Stark, et al. "51 Ophiuchus: A Possible Beta Pictoris Analog Measured with the Keck Interferometer Nuller," *Astrophysical Journal* **703***,* 1188 (2009).

C. C. Stark & M. J. Kuchner, "The Detectability of Exo-Earths and Super-Earths Via Resonant Signatures in Exozodiacal Clouds," *Astrophysical Journal* **686**, 637 (2008).

P. M. Shand, **C. Stark**, D. S. Williams, M. A. Morales, T. M. Pekarek, and D. L. Leslie-Pelecky, "Spin Glass or Random Anisotropy?: The Origin of Magnetically Glassy Behavior in Nanostructured $GdAl_2$," *Journal of Applied Physics* **97**, 10J505-1-3 (2005).

M. A. Morales, D. S. Williams, P. M. Shand, **C. Stark**, T. M. Pekarek, L. P. Yue, V. Petkov, and D. L. Leslie-Pelecky, "Disorder-Induced Depression of the Curie Temperature in Mechanically Milled $GdAl_2$," *Physical Review B* **70**, 184407-1–8 (2004).

C. Stark, P.M. Shand, T.M. Pekarek, D. Williams, R. Brown, L. Yue, and D.L. Leslie-Pelecky, "Coexistence of Ferromagnetic and Glassy States in Mechanically Milled $GdAl_2$," *American Journal of Undergraduate Research* **1**, 27 (2002).

Proceedings & White Papers

R. Kopparapu, E. Hebrard, R. Belikov, N. M. Batalha, G. D. Mulders, C. C. Stark, et al. "Exoplanet Diversity in the Era of Space-based Direct Imaging Missions," arXiv 1803.03812.

G. Ruane, J. Jewell, D. Mawet, S. Shaklan, & **C. C. Stark** "Segmented coronagraph design and analysis (SCDA): an initial design study of apodized vortex coronagraphs," arXiv 1712.02042.

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