

# Matthew A. Kenworthy

Curriculum Vitae - January 23, 2022

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## Education

1995-1999 **PhD** [Institute of Astronomy, University of Cambridge](#), Astronomy  
1992-1995 **BA (Hons)** [University of Oxford](#), Physics

## Employment

2015- **Associate Professor**, Leiden Observatory, The Netherlands.  
2010-2015 **Assistant Professor**, Leiden Observatory, The Netherlands.  
2007-2009 **Assistant Astronomer**, Steward Observatory, USA.  
2003-2007 **Instrument Scientist for the MMT AO System**, Steward Observatory, USA.  
2001-2003 **Postdoctoral Research Associate**, University of Cincinnati, USA.  
1999-2001 **Postdoctoral Research Associate**, Steward Observatory, USA.

## Main Research Interests

- **Ground-based extrasolar planet imaging:** Using the largest telescopes in the world to directly detect and characterise extrasolar planets. Developing and implementing image processing algorithms to understand the nature of quasi-static aberrations in the telescope and subsequently minimise them.
- **Hill sphere ring systems** Planets in very young stellar systems accrete material from the circumstellar disk through a Hill-sphere filling circumplanetary disk, and onto their cores. There is a transition period where the circumplanetary disk becomes optically thin as gas and dust are accreted into rings and moons, during which time we can detect these giant ring-like structures through their transit signals as seen on Earth. This provides a unique insight into the early history of planet and moon formation and evolution. J1407 and PDS 110 are two prototype transiting Hill sphere systems that we study, and we are searching for more in archival data.
- **Novel instrumentation techniques:** Developing visible and near-infrared instrumentation that complements traditional imaging and long slit spectroscopy, ranging from integral field spectrographs using optical fibers and hexagonal lenslet arrays, through to coronagraphic and phase apodizing techniques for high contrast imaging of extrasolar planet systems.

## Teaching

2022 Spring	High Contrast Imaging (Masters course), Leiden
2021 Autumn	Astronomical Telescopes and Instruments (Masters course), Leiden
2021 Spring	High Contrast Imaging (Masters course), Leiden
2020 Autumn	Astronomical Telescopes and Instruments (Masters course), Leiden
2019 Autumn	High Contrast Imaging (Masters course), Leiden
2019 Autumn	Astronomical Telescopes and Instruments (Masters course), Leiden
2019 Spring	Detection of Light (Masters course), Leiden
2018 Autumn	Astronomical Telescopes and Instruments (Masters course), Leiden
2017 Autumn	Astronomical Telescopes and Instruments (Masters course), Leiden
2017 Autumn	High Contrast Imaging (Masters course), Leiden
2016 Autumn	Astronomical Telescopes and Instruments (Masters course), Leiden
2015 Autumn	High Contrast Imaging (Masters course), Leiden
2015 Autumn	Astronomy and Instrumentation (Masters course), Leiden
2014 Autumn	Astronomy and Instrumentation (Masters course), Leiden
2014 Spring	Detection of Light (Masters course), Leiden
2013 Autumn	Modern Sterrenkundig Onderzoek (BSc second year), Leiden
2013 Autumn	NOVA Fall School (All incoming graduate students to Netherlands)
2012 Autumn	ACAO Summer School (Bachelor students from all over Africa), South Africa
2012 Autumn	Modern Sterrenkundig Onderzoek (BSc second year), Leiden
2012 Autumn	Detection of Light (Masters course), Leiden
2011 Autumn	Modern Sterrenkundig Onderzoek (BSc second year), Leiden
2011 Spring	Detection of Light (Masters course), Leiden

## Research Grants and Awards

2019-2023	<b>NWO/PEPSci - P.I. Matthew Kenworthy</b> 240kEuro for 'Modelling, detection and characterization of tidally heated exomoons'
2016	<b>NWO/NRF - P.I. Matthew Kenworthy</b> 12kEuro for 'Put a ring on it: looking for rings around the exoplanet Beta Pic b'
2015-2019	<b>NWO/FAPESP Collaboration - P.I. Matthew Kenworthy</b> 240kEuro for 4 year graduate student support
2013-2018	<b>NOVA Postdoc for SPHERE ZIMPOL - (as Co-I) P.I. Christoph Keller</b> Funds for 5 year postdoctoral support
2014	<b>NWO/NRF - P.I. Matthew Kenworthy</b> 12kEuro for 'Development of an Economical Adaptive Optics System'
2013	<b>HST Support - supervisor to the P.I. Tiffany Meshkat</b> Funds for multi-cycle observations
2011-2015	<b>ESFRI Graduate student - P.I. Matthew Kenworthy</b> 250kEuro Full graduate student support
2011-2015	<b>Marie Curie IRG - P.I. Matthew Kenworthy</b> 100kEuro over four years
2009-2011	<b>NSF AST ATI - P.I. Matthew Kenworthy</b> US\$433K over two years <i>'Thermal Imaging of Extrasolar Planets with the LBT'</i>
2008-2010	<b>NSF AST ATI - (as Co-I) P.I. Johnan Codona</b> US\$459K over two years <i>'Adaptive Halo Suppression for High-contrast mid-IR imaging'</i>
2005-2009	<b>NASA TPF Foundation Science - P.I. Matthew Kenworthy</b> US\$330K award over 4 years <i>'Detecting exo-Jupiters through Focal Plane Wavefront Sensing'</i>
2003-2005	<b>Chandra Cycle 4 - Proposal 4200417 - P.I. Marc Gagne</b> US\$12K support for Near IR Observations <i>'Deep Inside the Lagoon Nebula'</i>

## Supervision of PhD students and post graduates

From 2010 to 2021, I have supervised 18 MSc projects and 8 undergraduate projects on astronomy and instrumentation (see Table 1). I have supervised four PhD students: Tiffany Meshkat, Gilles Otten, Emiel Por and Alex Bohn, co-supervised Tim van Werkhoven (2014) and Maaïke van Kooten (2021) and supervised postdoctoral fellow Christian Ginski (2014—2018). My current graduate students are Dirk van Dam (2018—), co-supervising Elina Kleisioti (2021—) as part of the PEPSci-II program, and co-supervising Pengyu Liu with Prof. Beth Biller at the Royal Observatory Edinburgh.

Table 1: Students directly supervised by Matthew Kenworthy

Students	Degree	Title	Date
Jens Hoeijmakers and Ritse Heinsbroek	Bachelor	“Looking for faint stellar companions to A-type stars using image convolution”	2010/11
Sascha Zeegers	Masters	“Feasibility of transit spectroscopy of nearby debris disks”	2011/12
Joris Voorn	Bachelor	“Stability of multimode fibers for exoplanet spectroscopy”	2011/12
Mason Carney	Masters	“Modeling a Stepped Luneberg Lens for All-Sky Imaging”	2011/12
Tiffany Meshkat	PhD	“Extrasolar Planet Detection Through Spatially Resolved Observations”	2011/15
Gilles Otten	PhD	“Suppressing a Sea of Starlight: Enabling technology for the direct imaging of exoplanets”	2011/16
Ari Karisli and Stefano Metafuni	Bachelor	“Allskycam at Leiden Observatory”	2013
Emiel Por	Bachelor	“Sparse Aperture Masking at the Leiden Old Observatory”	2013
Arisa Hatagaya	Masters	“The Search for Transiting Exoplanets in the Beta Pictoris System using the Box-Fitting Least Squares Algorithm”	2013/14
Luis Henry Quiroga Nunez	Masters	“Principal Component Analysis of HST Coronagraphic Images to detect circumstellar disk structure”	2013/14
Tim van Werkhoven	Other	“Exomoons in the J1407 system”	2013/14
Martijn Oei	Bachelor	“Towards a polarization-induced dOTF wavefront sensor”	2014
Pim Overgaauw	Masters	“Finding the Drake Equation for Tidally Heated Exomoons”	2014
Julia Heuritsch	Masters	“Looking for transiting exo-ring planetary systems in archival data”	2014/15
Kiera Brooks	Masters	“On-sky testing of the Polarization dOTF Wavefront Sensor Camera”	2014/15
Lennart van Sluijs and Denis Vandael	Bachelor	“Transmission through the debris disk of the solar-like star HD 107146 from a distant occulted galaxy”	2015/16
Emiel Por	PhD	“Focal Plane Wavefront Sensing for Exoplanet detection”	2016
Robin Mentel	Other	“Constraining the orbital period of the ringed companion J1407b with photographic plate and CCD data”	2016
Patrick Dorval	Masters	“bRing: Continuous Monitoring of the Beta Pictoris Hill Sphere Transit”	2016/17
Dirk van Dam	Masters	“High Resolution Polarisation Imaging of 1SWASP J140747.93-394542.6: The Search for an Extrasolar Ring System”	2016/17
Bharath Chowdhary Nagam	Masters	“New Mass and Orbital constraints of J1407b”	2016/17

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**Table 1 – continued from previous page**

<b>Students</b>	<b>Degree</b>	<b>Title</b>	<b>Date</b>
Samuel Mellon	PhD	“The Beta Pictoris b Ring (bRing) Survey of the Southern Sky”	2016/19
Alexander Bohn	PhD	“The YOUNG SUNS Survey for Exoplanets in Sco Cen”	2017
Erik Weenk and Marit Mol Lous	Bachelor	“Looking for Beta Pic c”	2017
Nilofar Khorshid	Masters	“Improving the Photometric Precision of bRing by Constructing a PSF Map”	2017/18
Jorge Andres Villa Vandez	Masters	“Searching for Exoplanetary Rings with SUPERWASP and Gaia”	2017/18
Dirk van Dam	PhD	“Exorings”	2018
Lennart van Sluijs	Masters	“Spectroscopic Transit Search: a self-calibrating method for detecting planets around bright stars”	2018/19
Rachel Losacco	Masters	“Lava Rainbows of 55 Cancri e”	2018/19
Christiaan Dik and Stan Barmentloo	Bachelor	“Looking for transiting planets around J1407”	2019/20
Sanna Heesakkers & Rosa Hoogenboom	Bachelor	“Light Curves of the Brightest Stars”	2019/20
Andy Schmit	Masters	“Finding Ring Systems in TESS light curves and putting constraints on lifetimes”	2019/20
Christopher Seay	Masters	“Finding Extrasolar Companions Around Sun-like Stars in the Sco-Cen Association”	2019/20
Aniek van Ogtrop	Masters	“Observing nova explosions using bRing”	2019/20
Sacha van Ruiten	Bachelor	“Observability of Tidally Heated Exomoons with METIS”	2019/20
Ruoyan Wang	Masters	“Cataloging and Visualizing Cradles of Planet Formation”	2019/20

## Service & Committees (Institutional, active in italics)

I contribute to the Leiden Observatory department in several areas of management and administration, notably:

- *Diversity Committee 2019—*
- *Editor of Leiden Observatory Annual Report 2018—*
- *Social Committee 2018—*
- *Opleidingscommissie van Natuurkunde en Sterrenkunde 2014—*
- *Opleidingscommissie 2014—*
- Masters Admission Committee 2014—2019
- Promotie Belidings Committee 2013—2014, 2021: Leiden Observatory has one of the largest graduate programs in Europe with over 70 students in the academic year 2013. We talk with all the students once a year to listen to any concerns they might have and to ensure that they are progressing with their studies.
- Leiden Observatory Colloquium organiser 2011—2014.
- Masters Student Astronomy colloquium 2010—2012.

## Service & Committees (External, active in bold)

- 2021 JWST Cycle 1 Reviewer.
- 2018—2021 Reviewer for NWO VENI proposals.
- **2012— Coronagraphic design lead** for [ERIS](#), a second generation thermal infrared imaging camera for the VLT.
- 2013—2016 ING Time Allocation Committee.
- **Program Committee for the SPIE Astronomical Telescopes + Instrumentation 2016, 2018, 2020**
- 2014—2018 Simulations of first light [E-ELT](#) instrument Workshop Organiser, with the goal to unify the atmospheric and instrument parameters for consistent modeling.
- 2014—2016 [ESO Users Committee](#), representing the opinions of Dutch astronomers to the European Southern Observatory.
- 2012—2018 Coronagraphic design lead for the E-ELT instrument METIS as part of an international consortium.
- Review papers for ApJ, PASP, MNRAS, and other major astronomy journals.
- 2013 Group leader for the Rocky Exoplanets panel on the NWO [PEPSci](#) program, coordinating several proposals within the funding agency.

- 2011—2014 NOVA Colloquium Organiser for the four astronomy institutes, organising week long visits from international prominent researchers.
- **NSF and ERC Panel Reviewer** in 2010, 2013, 2015 and 2016, typically reading over a dozen proposals and acting as lead reviewer on 3 to 4 proposals each time.
- Reviewer for several international astronomy proposals.
- Canadian National Science Panel Reviewer in 2012.
- [Lorentz Center Workshop](#) Organiser for:
  - [“Tackling the Complexities of Substellar Objects”](#) in February 2020.
  - [“Rocks, Rubble and Rings: Understanding Deep and Irregular Transits”](#) in October 2016.
  - [“Combining Coronagraphs and Wavefront Control”](#) in October 2014.
  - [“How to find our Nearest Neighbours”](#) in October 2012

## Invited Colloquia and Research Talks

- 2022 January - University of Toronto Astronomy Colloquium
- 2021 September - George Mason University
- 2021 May - University of Innsbruck Seminar
- 2021 March - Stockholm Astronomy Seminar
- 2021 January - UCSC Astronomy Seminar
- 2021 January - MPIA Coffee Morning
- 2021 January - AAVSO Webinar (Remote)
- 2020 May - Origins Seminar at Steward Observatory/LPL (Remote)
- 2020 April - Saint Andrews Lunch Talk (Remote)
- 2020 April - Queens University Belfast Colloquium (Remote)
- 2020 March - Exeter Astrophysics Colloquium
- 2020 February - Patreon talk at Science Museum, London
- 2020 January - Oxford Astrophysics Colloquium, Oxford University
- 2020 January - HCI Workshop Direct Imaging review (Invited talk), Berlin
- 2019 November - Leicester University
- 2019 September - PLATO Science Meeting (Invited Talk), Warwick University
- 2019 May - NOAO Flash Talk
- 2019 May - SESE Coffee Talk, Arizona State University

- 2018 November - ROE Coffee Talk, Edinburgh
- 2018 June - Exeter Astrophysics Colloquium
- 2018 April - Caltech Coffee Talk
- 2018 April - JPL/MPIA Workshop
- 2017 October - NAOJ, Japan
- 2017 October - ELSI, Kobe
- 2017 September - Imperial College
- 2017 August - Exorings, Boise, ID
- 2017 May - University of Marburg
- 2017 April - Joan van der Waals, Leiden Physics
- 2017 January - Aarhus University
- 2016 August - BRITE Consortium
- 2016 May - NAC
- 2016 May - University of Wisconsin, Madison Lunch Talk
- 2016 April - NOAO FLASH Lunch Talk
- 2016 February - TU Delft
- 2016 January - Queens University Belfast
- 2015 December - Oxford University
- 2015 November - University of Cardiff
- 2015 September - Keynote talk at EPSC, Nantes.
- 2015 July - University of Cambridge
- 2015 April - University of Warwick
- 2015 April - SRON, NL
- 2015 March - University of Exeter
- 2015 February - ETH Zurich
- 2014 November - Royal Observatory Edinburgh
- 2014 October - University College London
- 2014 June - Gordon Research Conference
- 2013 October - Grenoble Observatory
- 2013 April - STScI



- 2012 December - ACAO Summer School
- 2012 September - ASTRON Colloquium
- 2012 April - Lund Colloquium
- 2012 March - Groningen
- 2012 March - OSP II Talks
- 2011 September - AO4ELT2 Conference
- 2011 September - ESTEC
- 2011 April - Groningen

## Bibliography of Publications

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3631	citations for 214 <a href="#">bibliographic references in the Astrophysics Data System</a>
119	Refereed publications
32	Hirsch h-index (i.e. 32 publications with $\geq 32$ citations)
58	<a href="#">SPIE Instrumentation Papers</a>

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[Google Scholar citations](#)

### Refereed Papers

- A127. [Unveiling wide-orbit companions to K-type stars in Sco-Cen with Gaia EDR3](#)  
Bohn, A. J., Ginski, C., Kenworthy, M. A., Mamajek, E. E., Meshkat, T., Pecaut, M. J., Reggiani, M., et al., **2022**, A&A, 657, A53.
- A126. [A wide-orbit giant planet in the high-mass  \$\beta\$  Centauri binary system](#)  
Janson, M., Gratton, R., Rodet, L., Vigan, A., Bonnefoy, M., Delorme, P., Mamajek, E. E., et al., **2021**, Natur, 600, 231.
- A125. [K2 Discovery of a Circumsecondary Disk Transiting EPIC 220208795](#)  
van der Kamp, L., van Dam, D. M., Kenworthy, M. A., Mamajek, E. E., & Pojmański, G., **2021**, arXiv, arXiv:2110.15086.
- A124. [Detecting life outside our solar system with a large high-contrast-imaging mission](#)  
Snellen, I. A. G., Snik, F., Kenworthy, M., Albrecht, S., Anglada-Escudé, G., Baraffe, I., Baudoz, P., et al., **2021**, ExA...tmp,.
- A123. [High-contrast observations of brown dwarf companion HR 2562 B with the vector Apodizing Phase Plate coronagraph](#)  
Sutlief, B. J., Bohn, A. J., Birkby, J. L., Kenworthy, M. A., Morzinski, K. M., Doelman, D. S., Males, J. R., et al., **2021**, MNRAS, 506, 3224.
- A122. [Exoplanets with ELT-METIS. I. Estimating the direct imaging exoplanet yield around stars within 6.5 parsecs](#)  
Bowens, R., Meyer, M. R., Delacroix, C., Absil, O., van Boekel, R., Quanz, S. P., Shinde, M., et al., **2021**, A&A, 653, A8.
- A121. [A search for transiting companions in the J1407 \(V1400 Cen\) system](#)  
Barentloo, S., Dik, C., Kenworthy, M. A., Mamajek, E. E., Hamsch, F.-J., Reichart, D. E., Rodriguez, J. E., & van Dam, D. M., **2021**, A&A, 652, A117.
- A120. [Spectral and angular differential imaging with SPHERE/IFS. Assessing the performance of various PCA-based approaches to PSF subtraction](#)  
Kiefer, S., Bohn, A. J., Quanz, S. P., Kenworthy, M., & Stolker, T., **2021**, A&A, 652, A33.
- A119. [Pupil-Plane Phase Apodization](#)  
Kenworthy, M. A., Codona, J. L., & Snik, F., **2021**, hai3.book, 377.
- A118. [The  \$^{13}\text{CO}\$ -rich atmosphere of a young accreting super-Jupiter](#)  
Zhang, Y., Snellen, I. A. G., Bohn, A. J., Mollière, P., Ginski, C., Hoeijmakers, H. J., Kenworthy, M. A., et al., **2021**, Natur, 595, 370.

- A117. *Lessons learned from SPHERE for the astrometric strategy of the next generation of exoplanet imaging instruments*  
Maire, A.-L., Langlois, M., Delorme, P., Chauvin, G., Gratton, R., Vigan, A., Girard, J. H., et al., **2021**, JATIS, 7, 035004.
- A116. *High-precision Astrometric Studies in Direct Imaging with SPHERE*  
Maire, A.-L., Chauvin, G., Vigan, A., Gratton, R., Langlois, M., Girard, J. H., Kenworthy, M. A., et al., **2021**, Msng, 183, 7.
- A115. *Vector-apodizing phase plate coronagraph: design, current performance, and future development [Invited]*  
Doelman, D. S., Snik, F., Por, E. H., Bos, S. P., Otten, G. P. P. L., Kenworthy, M., Haffert, S. Y., et al., **2021**, ApOpt, 60, D52.
- A114. *A MUSE view of the asymmetric jet from HD 163296*  
Xie, C., Haffert, S. Y., de Boer, J., Kenworthy, M. A., Brinchmann, J., Girard, J., Snellen, I. A. G., & Keller, C. U., **2021**, A&A, 650, L6.
- A113. *A high-contrast search for variability in HR 8799bc with VLT-SPHERE*  
Biller, B. A., Apai, D., Bonnefoy, M., Desidera, S., Gratton, R., Kasper, M., Kenworthy, M., et al., **2021**, MNRAS, 503, 743.
- A112. *Discovery of a directly imaged planet to the young solar analog YSES 2*  
Bohn, A. J., Ginski, C., Kenworthy, M. A., Mamajek, E. E., Pecaut, M. J., Mugrauer, M., Vogt, N., et al., **2021**, A&A, 648, A73.
- A111. *The  $\beta$  Pictoris b Hill sphere transit campaign. I. Photometric limits to dust and rings*  
Kenworthy, M. A., Mellon, S. N., Bailey, J. I., Stuik, R., Dorval, P., Talens, G. J. J., Crawford, S. R., et al., **2021**, A&A, 648, A15.
- A110. *BEAST begins: sample characteristics and survey performance of the B-star Exoplanet Abundance Study*  
Janson, M., Squicciarini, V., Delorme, P., Gratton, R., Bonnefoy, M., Reffert, S., Mamajek, E. E., et al., **2021**, A&A, 646, A164.
- A109. *Periodic brightening of Kepler light curves: investigating the possibility of forward scattering due to dust clouds*  
van Kooten, M. A. M., Kenworthy, M., & Doelman, N., **2020**, MNRAS, 499, 2817.
- A108. *An Asymmetric Eclipse Seen toward the Pre-main-sequence Binary System V928 Tau*  
van Dam, D. M., Kenworthy, M. A., David, T. J., Mamajek, E. E., Hillenbrand, L. A., Cody, A. M., Howard, A. W., et al., **2020**, AJ, 160, 285.
- A107. *Searching for proto-planets with MUSE*  
Xie, C., Haffert, S. Y., de Boer, J., Kenworthy, M. A., Brinchmann, J., Girard, J., Snellen, I. A. G., & Keller, C. U., **2020**, A&A, 644, A149.
- A106. *METIS high-contrast imaging: design and expected performance (Erratum)*  
Carlomagno, B., Delacroix, C., Absil, O., Cantalloube, F., de Xivry, G. O., Pathak, P., Agocs, T., et al., **2020**, JATIS, 6, 049801.

- A105. *Disk Evolution Study Through Imaging of Nearby Young Stars (DESTINYs): A close low-mass companion to ET Cha*  
Ginski, C., Ménard, F., Rab, C., Mamajek, E. E., van Holstein, R. G., Benisty, M., Manara, C. F., et al., **2020**, A&A, 642, A119.
- A104. *Unveiling the  $\beta$  Pictoris system, coupling high contrast imaging, interferometric, and radial velocity data*  
Lagrange, A. M., Rubini, P., Nowak, M., Lacour, S., Grandjean, A., Boccaletti, A., Langlois, M., et al., **2020**, A&A, 642, A18.
- A103. *Publisher Correction: A planet within the debris disk around the pre-main-sequence star AU Microscopii*  
Plavchan, P., Barclay, T., Gagné, J., Gao, P., Cale, B., Matzko, W., Dragomir, D., et al., **2020**, Natur, 583, E31.
- A102. *A low-mass stellar companion to the young variable star RZ Psc*  
Kennedy, G. M., Ginski, C., Kenworthy, M. A., Benisty, M., Henning, T., van Holstein, R. G., Kral, Q., et al., **2020**, MNRAS, 496, L75.
- A101. *METIS high-contrast imaging: design and expected performance*  
Carlomagno, B., Delacroix, C., Absil, O., Cantalloube, F., Orban de Xivry, G., Pathak, P., Agocs, T., et al., **2020**, JATIS, 6, 035005.
- A100. *Two Directly Imaged, Wide-orbit Giant Planets around the Young, Solar Analog TYC 8998-760-1*  
Bohn, A. J., Kenworthy, M. A., Ginski, C., Rieder, S., Mamajek, E. E., Meshkat, T., Pecaut, M. J., et al., **2020**, ApJL, 898, L16.
- A99. *A planet within the debris disk around the pre-main-sequence star AU Microscopii*  
Plavchan, P., Barclay, T., Gagné, J., Gao, P., Cale, B., Matzko, W., Dragomir, D., et al., **2020**, Natur, 582, 497.
- A98. *First Images of the Protoplanetary Disk around PDS 201*  
Wagner, K., Stone, J., Dong, R., Ertel, S., Apai, D., Doelman, D., Bohn, A., et al., **2020**, AJ, 159, 252.
- A97. *Robustness of prediction for extreme adaptive optics systems under various observing conditions. An analysis using VLT/SPHERE adaptive optics data*  
van Kooten, M. A. M., Doelman, N., & Kenworthy, M., **2020**, A&A, 636, A81.
- A96. *A multiplicity study of transiting exoplanet host stars. II. Revised properties of transiting planetary systems with companions*  
Southworth, J., Bohn, A. J., Kenworthy, M. A., Ginski, C., & Mancini, L., **2020**, A&A, 635, A74.
- A95. *A multiplicity study of transiting exoplanet host stars. I. High-contrast imaging with VLT/SPHERE*  
Bohn, A. J., Southworth, J., Ginski, C., Kenworthy, M. A., Maxted, P. F. L., & Evans, D. F., **2020**, A&A, 635, A73.
- A94. *MASCARA-4 b/bRing-1 b: A retrograde hot Jupiter around a bright A-type star*  
Dorval, P., Talens, G. J. J., Otten, G. P. P. L., Brahm, R., Jordán, A., Torres, P., Vanzì, L., et al., **2020**, A&A, 635, A60.

- A93. *The Single-mode Complex Amplitude Refinement (SCAR) coronagraph. II. Lab verification, and toward the characterization of Proxima b*  
Haffert, S. Y., Por, E. H., Keller, C. U., Kenworthy, M. A., Doelman, D. S., Snik, F., & Escuti, M. J., **2020**, A&A, 635, A56.
- A92. *The Young Suns Exoplanet Survey: Detection of a wide-orbit planetary-mass companion to a solar-type Sco-Cen member*  
Bohn, A. J., Kenworthy, M. A., Ginski, C., Manara, C. F., Pecaut, M. J., de Boer, J., Keller, C. U., et al., **2020**, MNRAS, 492, 431.
- A91. *ALMA and NACO observations towards the young exoring transit system J1407 (V1400 Cen)*  
Kenworthy, M. A., Klaassen, P. D., Min, M., van der Marel, N., Bohn, A. J., Kama, M., Triaud, A., et al., **2020**, A&A, 633, A115.
- A90. *Bright Southern Variable Stars in the bRing Survey*  
Mellon, S. N., Mamajek, E. E., Stuik, R., Zwintz, K., Kenworthy, M. A., Talens, G. J. J., Burggraaff, O., et al., **2019**, ApJS, 244, 15.
- A89. *Revisiting the pulsational characteristics of the exoplanet host star  $\beta$  Pictoris*  
Zwintz, K., Reese, D. R., Neiner, C., Pigulski, A., Kuschnig, R., Müllner, M., Zieba, S., et al., **2019**, A&A, 627, A28.
- A88. *Spectroscopic transit search: a self-calibrating method for detecting planets around bright stars*  
van Sluijs, L., de Mooij, E., Kenworthy, M., Celeste, M., Hooton, M. J., Mamajek, E. E., Sipócz, B., et al., **2019**, A&A, 626, A97.
- A87. *The PDS 110 observing campaign - photometric and spectroscopic observations reveal eclipses are aperiodic*  
Osborn, H. P., Kenworthy, M., Rodriguez, J. E., de Mooij, E. J. W., Kennedy, G. M., Relles, H., Gomez, E., et al., **2019**, MNRAS, 485, 1614.
- A86. *Impact of time-variant turbulence behavior on prediction for adaptive optics systems*  
van Kooten, M., Doelman, N., & Kenworthy, M., **2019**, JOSAA, 36, 731.
- A85. *Transiting exocomets detected in broadband light by TESS in the  $\beta$  Pictoris system*  
Zieba, S., Zwintz, K., Kenworthy, M. A., & Kennedy, G. M., **2019**, A&A, 625, L13.
- A84. *Discovery of a directly imaged disk in scattered light around the Sco-Cen member Wray 15-788*  
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## SPIE Papers

Please note: it is common for instrumentation papers to be published in SPIE proceedings. These papers reflect final references and are commonly cited as such, with no subsequent related articles appearing in the refereed science journals.

- B58. *Exoplanet imaging data challenge: benchmarking the various image processing methods for exoplanet detection*  
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## Outreach

Popular science talks given:

- 2021 November 24 - Rijnlands Lyceum, Oegstgeest, The Netherlands
- 2021 May 17 - Newbury Astronomical Society
- 2021 January 09 - AAVSO Webinar
- 2020 December 07 - Wallace Fields Primary School, Epsom, England
- 2020 September 28 - Astronomy on Tap, Leiden, NL
- 2020 July 04 - Perth Observatory, Australia
- 2020 May 13 - Astronomy on Tap, Lansing, MI, USA
- 2020 February 12 - Science Museum, London, England
- 2019 October 05 - Space Lates, National Space Centre, Leicester, England
- 2019 June 11 - Astronomy on Tap, Edinburgh, Scotland
- 2019 March 23 - Kaiser Spring Lectures, Leiden, NL
- 2018 October 23 - Cuba City School - 8 grades, WI, USA
- 2017 October 26 - Science Cafe Wageningen - "Large Telescopes"
- 2017 October 12 - Mr. Withers - Wood End School, Harpenden, Hertfordshire. Skype with 3 classes.
- 2017 September 11 - Ewell Astronomical Society
- 2017 June - Primary School Skype
- 2017 May - Lions Club, Leiden
- 2017 March 27 - Leiden inaugural "Astronomy On Tap"
- 2017 March 17 - Skype talks with Group 5 at St Cuthbert's school in Quorn, England
- 2016 September - [Ewell Astronomical Society](#), London - "The discovery of a giant ring system around the exoplanet J1407b"
- 2016 November 22 - Beth Spear, Westosha Central High School
- 2016 February - Cuba City High School
- 2015 October 27 - [Leidse Weer- en Sterrekundige Kring](#) - "The discovery of a giant ring system around the exoplanet J1407b"
- 2015 April 22 - American School of the Hague - "Extrasolar Planets and Rings"
- 2015 July 05 - Leiden LEAPS Program - "Introduction to Exoplanet Detection"

Popular press articles written:

- “Rings of a Super Saturn” in *Scientific American* 2015
- “Sharpening the Sky with Adaptive Optics” in *Yearbook of Astronomy 2006*, ed. Patrick Moore, MacMillan.
- “Challenges with the MMT Adaptive Optics System” an Invited article for the *Center for Adaptive Optics Newsletter*, **3**, 1 (Winter 2006)
- “One in a trillion comet” - News article for *Astronomy* magazine (November 2004)
- “Einstein’s Mirror” - a book review written for *Astronomy Now*, p.12 (March 1998)
- “A dark cloud on the horizon” - “Objective” (op-ed article) written for *Astronomy Now*, p.66 (September 1997)
- “Gamma ray burst ‘seen’ ” - News Update written for *Astronomy Now*, p.6 (June 1997)
- “Images of Comet Hyakutake” - written for “Comet Hyakutake: a further view” *Astronomy Now*, p.23 (July 1996)