

Alexander Julian Bohn

Curriculum Vitae

Personal information

Institute Leiden Observatory
Address Niels Bohrweg 2 - 2333CA Leiden, The Netherlands
Email bohn@strw.leidenuniv.nl
Phone (0031) 71 527 8150
Nationality German

Education

01/08/2017 **PhD candidate**, *Leiden Observatory*, Leiden University, The Netherlands.
– **Present** Preliminary thesis title: *Young suns and infant planets – probing the origins of solar systems*.
14/09/2015 **MSc Physics**, *ETH Zurich*, Switzerland.
– 06/06/2017 Thesis title: *High-contrast imaging of extra-solar planets around the nearest stars*
17/09/2012 **BSc Physics**, *ETH Zurich*, Switzerland.
– 18/05/2016 Thesis title: *Separation measurements in the symbiotic system R Aquarii*
06/08/2009 **High-school**, *Kaiser-Wilhelm- und Ratsgymnasium Hannover*, Germany.
– 25/06/2011

Appointments & Experience

Scientific Research

01/08/2017 **Research associate**, *Leiden Observatory*, Leiden University, The Netherlands.
– **Present** Principal investigator (PI) of the Young Suns Exoplanet Survey (**YSES**). Consortium member of the **SPHERE** instrument, the B-Star Exoplanet Abundance Study (**BEAST**; PI: M. Janson), the Disk Evolution Study Through Imaging of Nearby Young Stars (**DESTINYs**; PI: C. Ginski), and the **ExoGRAVITY** project (PI: S. Lacour).

Vocational

01/09/2011 **Voluntary scientific year**, *Institute of Cartography and Geoinformatics*, Leibniz
– 31/08/2012 Universität Hannover, Germany.
Participation in the **CamInSens** project on autonomous, real-time analysis of surveillance camera data: design of an intelligent system that evaluates potential risks in crowded places by analysis of movement patterns.

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Teaching

- 17/02/2014 **Teaching assistant**, *Leiden Observatory*, The Netherlands.
–02/06/2017 Astronomical Telescopes and Instruments (fall 2019)
Astronomical Telescopes and Instruments (fall 2018)
Astronomical Telescopes and Instruments (fall 2017)
- 17/02/2014 **Teaching assistant**, *ETH Zurich*, Switzerland.
–02/06/2017 Introduction to numerical methods for physicists (spring 2017)
Linear algebra for electrical engineers (fall 2016)
Introduction to numerical methods for physicists (spring 2016)
Introduction to numerical methods for CSE (fall 2015)
Introduction to numerical methods for electrical engineers
Introduction to numerical methods for CSE (fall 2014)
Introduction to numerical methods for electrical engineers (spring 2014)

Scientific presentations

Selected talks

- 2021 **NOVA evaluation board meeting**, *Amsterdam (virtual)*, The Netherlands.
Title: *Young suns and infant planets: probing the origins of solar systems*
- 2020 **GRAVITY GTO meeting**, *Grenoble (virtual)*, France.
Title: *A VLTI/GRAVITY survey of transitional disks*
- 2020 **Exocoffee meeting**, *Heidelberg (virtual)*, Germany.
Title: *Two giant planets around the solar analog TYC 8998-760-1*
- 2020 **Exoplanets III**, *Heidelberg (virtual, recording available [online](#))*, Germany.
Title: *Revealing planets, disks, and brown dwarfs around young, solar analogues*
- 2020 **European Southern Observatory, lunch talk**, *Garching*, Germany.
Title: *Young Suns Exoplanet Survey (YSES) reveals planets, brown dwarfs, and disks in Sco-Cen*
- 2020 **High-contrast imaging post-processing workshop**, *Berlin*, Germany.
Title: *Reference star differential imaging to reveal point sources and disks*
- 2019 **In the Spirit of Lyot**, *Tokyo*, Japan.
Title: *Young Suns Exoplanet Survey (YSES) reveals planets, brown dwarfs, and disks in Sco-Cen*
- 2019 **SPHERE science meeting**, *Marseille*, France.
Title: *Young Suns Exoplanet Survey (YSES) reveals planets, brown dwarfs, and disks in Sco-Cen*
- 2019 **Star and planet formation group meeting ETH**, *Zurich*, Switzerland.
Title: *First results of YSES – A direct imaging survey for planets around solar mass stars*
- 2019 **Center for Space and Habitability, lunch talk**, *Bern*, Switzerland.
Title: *First results of YSES – A direct imaging survey for planets around solar mass stars*
- 2019 **AURA Observatory colloquium**, *La Serena*, Chile.
Title: *First results of YSES – A direct imaging survey for planets around solar mass stars*
- 2018 **NOVA network meeting**, *Amsterdam*, The Netherlands.
Title: *First results of YSES – A direct imaging survey for planets around solar mass stars*

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2018 **SPHERE science meeting**, *Amsterdam*, The Netherlands.
Title: *First results of the Young Suns Exoplanet Survey (YSES)*

Posters

2018 **Exoplanets II**, *Cambridge*, United Kingdom.
Title: *First results of YSES – A direct imaging survey for planets around solar mass stars*

2018 **Netherlands Astronomers Conference**, *Groningen*, The Netherlands.
Title: *Direct detection of extra-solar planets around young suns in Sco-Cen*

Awarded telescope time

Principal investigator (39 h)

2020 **VLT/SPHERE**, *1 hour*, Program ID: 105.20PF.001.

Title: Confirming a directly imaged multi-planet system around a young Sun

2019 **VLT/SPHERE**, *11.5 hours*, Program ID: 0104.C-0265(A).

Title: Confirming (sub-)stellar companions to transiting exoplanet host stars

2019 **VLT/SPHERE**, *2 hours*, Program ID: 0104.C-0354(A, B).

Title: Characterizing a peculiar protoplanetary disk around a young, solar-like star

2019 **VLT/XSHOOTER**, *0.5 hours*, Program ID: 2103.C-5012(A).

Title: Characterizing a recently found planetary-mass companion to a young, solar-type star

2019 **VLT/NACO**, *4 hours*, Program ID: 2103.C-5012(B).

Title: Characterizing a recently found planetary-mass companion to a young, solar-type star

2019 **VLT/SINFONI**, *2.5 hours*, Program ID: 2103.C-5012(C).

Title: Characterizing a recently found planetary-mass companion to a young, solar-type star

2019 **VLT/SPHERE**, *2.5 hours*, Program ID: 0103.C-0371(A).

Title: Confirming planets around a young, solar-like star with a peculiar protoplanetary disk

2018 **VLT/NACO**, *4 hours*, Program ID: 2102.C-5016(A).

Title: High-contrast imaging of planets and circumstellar material around Barnard's star

2018 **VLT/SPHERE**, *3 hours*, Program ID: 2102.C-5016(B).

Title: High-contrast imaging of planets and circumstellar material around Barnard's star

2018 **VLT/SPHERE**, *8 hours*, Program ID: 0101.C-0341(A).

Title: Confirming young planets around young suns in Sco-Cen

Co-investigator

2019 **VLT/SPHERE**, *127.5 hours*, Program ID: 1104.C-0415(A–H).

– **Present** Title: Disk Evolution Study Through Imaging of Nearby Young Stars (DESTINYS)

2019 **VLT/SINFONI**, *1 hours*, Program ID: 0103.C-0251(A).

Title: Spectral characterization of two BEAST planet candidates

2019 **VLT/NACO**, *0.5 hours*, Program ID: 0103.C-0251(B).

Title: Spectral characterization of two BEAST planet candidates

2019 **VLT/NACO**, *1.5 hours*, Program ID: 0103.C-0251(C).

Title: Spectral characterization of two BEAST planet candidates

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- 2019 **VLT/NACO**, 1.5 hours, Program ID: 0103.C-0229(A).
Title: Caught in the act - thermal infrared imaging of forming planets in the V1094, Sco transition disk
- 2019 **LBT/LMIRcam**, 1.5 nights.
Title: Demonstration of LMIRCam's vAPP coronagraphs: exoplanet host stars with sub-arcsecond binary companions
- 2018 **VLT/SPHERE**, 1.5 hours, Program ID: 0102.C-0647(A).
Title: Confirming an exoplanetary ring system close to J1407
- 2018 **VLT/NACO**, 2 hours, Program ID: 0102.C-0647(B).
Title: Confirming an exoplanetary ring system close to J1407
- 2018 **VLT/SPHERE**, 20 hours, Program ID: 0101.C-0153(A).
Title: Extreme planets of young Suns II
- 2017 **VLT/SPHERE**, 260 nights, SPHERE GTO.
- **Present**
- 2017 **VLT/NACO**, 4 hours, Program ID: 0100.C-0656(A).
Title: Confirming a directly imaged gas giant planet candidate at 2.6 AU from its nearby host star

Supervision of students

Master

- 2020–2021 **Pengyu Liu**, *Leiden Observatory*, Leiden University.
Preliminary thesis title: *Advanced post-processing of vAPP coronagraphic data*
- 2019–2020 **Sven Kiefer**, *ETH Zurich*, Switzerland.
Thesis title: *Improving Direct Imaging of Exoplanets using Spectral Observations from SPHERE/IFS*
- 2019–2020 **Chris Seay**, *Leiden Observatory*, Leiden University, The Netherlands.
Thesis title: *Finding Extrasolar Companions Around Sun-like Stars in the Sco-Cen Association*
- 2019 **Vaishali Chandramohan**, *Leiden Observatory*, Leiden University, The Netherlands.
Thesis title: *Deep Direct Imaging of HR8799*

Bachelor

- 2018 **Matthijs Mars**, *Leiden Observatory*, Leiden University, The Netherlands.
Thesis title: *Finding exoplanets in (vAPP) coronagraphic data*

Computer skills

Advanced	PYTHON, L ^A T _E X
Intermediate	MATLAB, IDL
Basic	JAVA, C++

Languages

German	Mothertongue	
English	Very good	<i>Business fluent</i>
Dutch	Basics	<i>Con conversationally fluent</i>

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Outreach activities

Press releases

- 2021 Astronomers finally measure polarized light from exoplanet, [astronomie.nl](http://www.astronomie.nl)
- 2020 First Ever Image of a Multi-Planet System around a Sun-like Star Captured by ESO Telescope, [European Southern Observatory](http://www.european-southern-observatory.org)
- 2019 A Pair of Fledgling Planets Directly Seen Growing Around a Young Star, [Space Telescope Science Institute](http://www.spacetelescope.org)

Miscellaneous

- 2020 Several **media interviews** for news articles reporting the first image of a multi-planet system around a Sun-like star. [Altmetric](https://www.altmetric.com) ranks our article as # 52 among the 100 most-discussed papers of the year 2020 with more than 200 news stories published all over the world.
- 2020 Appearance in **Night Sky News August 2020** on [YouTube](https://www.youtube.com) (~ 70'000 views).
- 2020 Participation in the **Go At Throttle Up podcast** talking about our discovery of the first multi-planet system imaged around a Sun-like star.
- 2020 **Invited talk** (virtual) at a 7th grade science class in Winter Garden, Florida, USA, entitled '*The story behind the first image of two planets around a Young Sun*'.
- 2019 **Invited talk** at a seminar of the 'Studienstiftung des deutschen Volkes' (German Academic Scholarship Foundation) in Dresden, Germany, entitled '*The search for life outside Earth*'.

Scientific Publications

* denotes a student publication that was supervised by **A. J. Bohn**.

First or second author

- 24. **A. J. BOHN**, M. A. Kenworthy et al., *Two Directly Imaged, Wide-orbit Giant Planets around the Young, Solar Analog TYC 8998-760-1*, The Astrophysical Journal Letters 2020, 898: L16.
- 23. J. Southworth, **A. J. BOHN** et al., *A multiplicity study of transiting exoplanet host stars. II. Revised properties of transiting planetary systems with companions*, Astronomy & Astrophysics 2020, 635: A74.
- 22. **A. J. BOHN**, J. Southworth et al., *A multiplicity study of transiting exoplanet host stars. I. High-contrast imaging with VLT/SPHERE*, Astronomy & Astrophysics 2020, 635: A73.
- 21. **A. J. BOHN**, M. A. Kenworthy et al., *The Young Suns Exoplanet Survey: Detection of a wide-orbit planetary-mass companion to a solar-type Sco-Cen member*, Monthly Notices of the Royal Astronomical Society 2020, 492: 431-443.
- 20. S. Y. Haffert, **A. J. BOHN** et al., *Two accreting protoplanets around the young star PDS 70*, Nature Astronomy 2019, 3: 749-754.
- 19. **A. J. BOHN**, M. A. Kenworthy et al., *Discovery of a directly imaged disk in scattered light around the Sco-Cen member Wray 15-788*, Astronomy & Astrophysics 2019, 624: A87.

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18. C. Kuntzsch and **A. BOHN**, *A framework for on-line detection of custom group movement patterns*, Progress in Location-Based Services, Springer Berlin Heidelberg, 2013. S. 91-107.

Co-author

17. J. J. Wang et al. including **A. BOHN**, *Constraining the Nature of the PDS 70 Protoplanets with VLTI/GRAVITY*, The Astronomical Journal 2021, in press.
16. R. G. van Holstein et al. including **A. J. BOHN**, *A survey of the linear polarization of directly imaged exoplanets and brown dwarf companions with SPHERE-IRDIS. First polarimetric detections revealing disks around DH Tau B and GSC 6214-210 B*, Astronomy & Astrophysics 2021, in press.
15. M. Janson et al. including **A. J. BOHN**, *BEAST begins: Sample characteristics and survey performance of the B-star Exoplanet Abundance Study*, Astronomy & Astrophysics 2021, in press.
14. J. H. Girard et al. including **A. BOHN**, *Planet formation with all flavors of adaptive optics: VLT/MUSE's laser tomography adaptive optics to directly image young accreting exoplanets*, Proceedings of the SPIE 2020, Volume 11448, id. 1144808 12 pp.
13. S. Lacour et al. including **A. BOHN**, *The ExoGRAVITY project: using single mode interferometry to characterize exoplanets*, Proceedings of the SPIE 2020, Volume 11446, id. 1144600 10 pp.
12. J. de Boer et al. including **A. BOHN**, *A single-armed spiral in the protoplanetary disk around HD34282?*, Astronomy & Astrophysics 2020, in press.
11. A. Vigan et al. including **A. J. BOHN**, *The SPHERE infrared survey for exoplanets (SHINE). III. The demographics of young giant exoplanets below 300 au with SPHERE*, Astronomy & Astrophysics 2020, in press.
10. C. Ginski et al. including **A. BOHN**, *Disk Evolution Study Through Imaging of Nearby Young Stars (DESTINYs): A close low mass companion to ET Cha*, Astronomy & Astrophysics 2020, 642: A119.
9. K. Wagner et al. including **A. BOHN**, *First Images of the Protoplanetary Disk around PDS 201*, The Astronomical Journal 2020, 159: 252.
8. G. A. Muro-Arena et al. including **A. J. BOHN**, *Spirals inside the millimeter cavity of transition disk SR 21*, Astronomy & Astrophysics 2020, 636: L4.
7. Julien H. Girard et al. including **Alexander BOHN**, *Original use of MUSE's laser tomography adaptive optics to directly image young accreting exoplanets*, AO4ELT6 Conference Proceedings 2019.
6. M. A. Kenworthy et al. including **A. J. BOHN**, *ALMA and NACO observations towards the young exorng transit system J1407 (V1400 Cen)*, Astronomy & Astrophysics 2020, 633: A115.
5. M. Janson et al. including **A. J. BOHN**, *The B-Star Exoplanet Abundance Study: a co-moving 16-25 M_{Jup} companion to the young binary system HIP 79098*, Astronomy & Astrophysics 2019, 626: A99.

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4. G. Cugno et al. including **A. J. BOHN**, *A search for accreting young companions embedded in circumstellar disks: High-contrast $H\alpha$ imaging with VLT/SPHERE*, *Astronomy & Astrophysics* 2019, 622: A156.
3. A.-M. Lagrange et al. including **A. J. BOHN**, *Post-conjunction detection of β Pictoris b with VLT/SPHERE*, *Astronomy & Astrophysics* 2019, 621: L8.
2. T. Stolker et al. including **A. J. BOHN**, *PynPoint: a modular pipeline architecture for processing and analysis of high-contrast imaging data*, *Astronomy & Astrophysics* 2019, 621: A59.
1. H. M. Schmid et al. including **A. J. BOHN**, *SPHERE / ZIMPOL observations of the symbiotic system R Aqr*, *Astronomy & Astrophysics* 2017, 602: A53.