High-contrast imaging polarimetry of exoplanets and circumstellar disks

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List of publications

Refereed publications

1. *New constraints on the disk characteristics and companion candidates around T Chamaeleontis with VLT/SPHERE*
   Pohl, A., Sissa, E., Langlois, M., et al.
   Astronomy and Astrophysics, 605, A34 (2017)

2. *DZ Chamaeleontis: a bona fide photoevaporating disc*
   Canovas, H., Montesinos, B., Schreiber, M. R., et al.
   Astronomy and Astrophysics, 610, A13 (2018)

3. *First direct detection of a polarized companion outside a resolved circumbinary disk around CS Chamaeleonis*
   Ginski, C., Benisty, M., van Holstein, R. G., et al.
   Astronomy and Astrophysics, 616, A79 (2018)

4. *Discovery of a planetary-mass companion within the gap of the transition disk around PDS 70*
   Keppler, M., Benisty, M., Müller, A., et al.
   Astronomy and Astrophysics, 617, A44 (2018)

5. *Resolving faint structures in the debris disk around TWA 7. Tentative detections of an outer belt, a spiral arm, and a dusty cloud*
   Olofsson, J., van Holstein, R. G., Boccaletti, A., et al.
   Astronomy and Astrophysics, 617, A109 (2018)

6. *SPHERE/ZIMPOL high resolution polarimetric imager. I. System overview, PSF parameters, coronagraphy, and polarimetry*
   Schmid, H. M., Bazzon, A., Roelfsema, R., et al.
   Astronomy and Astrophysics, 619, A9 (2018)

7. *Spatially resolved spectroscopy of the debris disk HD 32297. Further evidence of small dust grains*
   Bhowmik, T., Boccaletti, A., Thébault, P., et al.
   Astronomy and Astrophysics, 630, A85 (2019)

8. *Polarimetric imaging mode of VLT/SPHERE/IRDIS. I. Description, data reduction, and observing strategy*
   de Boer, J., Langlois, M., van Holstein, R. G., et al.
   Astronomy and Astrophysics, 633, A63 (2020)

9. *Polarimetric imaging mode of VLT/SPHERE/IRDIS. II. Characterization and correction of instrumental polarization effects*
van Holstein, R. G., Girard, J. H., de Boer, J., et al.
Astronomy and Astrophysics, 633, A64 (2020)

10. *Disks Around T Tauri Stars with SPHERE (DARTTS-S). II. Twenty-one new polarimetric images of young stellar disks*
Garufi, A., Avenhaus, H., Pérez, S., et al.
Astronomy and Astrophysics, 633, A82 (2020)

11. *RefPlanets: Search for reflected light from extrasolar planets with SPHERE/ZIMPOL*
Hunziker, S., Schmid, H. M., Mouillet, D., et al.
Astronomy and Astrophysics, 634, A69 (2020)

12. *Spirals inside the millimeter cavity of transition disk SR 21*
Muro-Arena, G. A., Ginski, C., Dominik, C., et al.
Astronomy and Astrophysics, 636, L4 (2020)

13. *Detection of Polarization due to Cloud Bands in the Nearby Luhman 16 Brown Dwarf Binary*
Millar-Blanchaer, M. A., Girard, J. H., Karalidi, T., et al.
The Astrophysical Journal, 894, 42 (2020)

14. *A low-mass stellar companion to the young variable star RZ Psc*
Kennedy, G. M., Ginski, C., Kenworthy, M. A., et al.
Monthly Notices of the Royal Astronomical Society, 496, L75 (2020)

15. *Gap, shadows, spirals, and streamers: SPHERE observations of binary-disk interactions in GG Tauri A*
Keppler, M., Penzlin, A., Benisty, M., et al.
Astronomy and Astrophysics, 639, A62 (2020)

16. *Ongoing flyby in the young multiple system UX Tauri*
Ménard, F., Cuello, N., Ginski, C., et al.
Astronomy and Astrophysics, 639, L1 (2020)

17. *Dynamical Evidence of a Spiral Arm-driving Planet in the MWC 758 Protoplanetary Disk*
Ren, B., Dong, R., van Holstein, R. G., et al.
The Astrophysical Journal, 898, L38 (2020)

18. *CS Cha B: A disc-obscured M-type star mimicking a polarised planetary companion*
Haffert, S. Y., van Holstein, R. G., Ginski, C., et al.
Astronomy and Astrophysics, 640, L12 (2020)

19. *The circumstellar environment of EX Lupi: SPHERE and SINFONI views*
Rigliaco, E., Gratton, R., Kóspál, Á., et al.
Astronomy and Astrophysics, 641, A33 (2020)

20. *Disk Evolution Study Through Imaging of Nearby Young Stars (DESTINYS): A close low-mass companion to ET Cha*
Ginski, C., Ménard, F., Rab, C., et al.
Astronomy and Astrophysics, 642, A119 (2020)

21. *A triple star in disarray. Multi-epoch observations of T Tauri with VLT-SPHERE and LBT-LUCI*
Kasper, M., Santhakumari, K. K. R., Herbst, T. M., et al.
Astronomy and Astrophysics, 644, A114 (2020)

22. *A Search for Polarized Thermal Emission from Directly Imaged Exoplanets and Brown Dwarf Companions to Nearby Stars*
Jensen-Clem, R., Millar-Blanchaer, M. A., van Holstein, R. G., et al.
The Astronomical Journal, 160, 286 (2020)

23. *Disk Evolution Study Through Imaging of Nearby Young Stars (DESTINYS): Late Infall Causing Disk Misalignment and Dynamic Structures in SU Aur*
Ginski, C., Facchini, S., Huang, J., et al.
The Astrophysical Journal, 908, L25 (2021)

24. *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*
van Holstein, R. G., Stolker, T., Jensen-Clem, R., et al.
Astronomy and Astrophysics, 647, A21 (2021)

25. *HD 142527: quantitative disk polarimetry with SPHERE*
Hunziker, S., Schmid, H. M., Ma, J., et al.
Astronomy and Astrophysics, 648, A110 (2021)

26. *How many suns are in the sky? A SPHERE multiplicity survey of exoplanet host stars. I. Four new close stellar companions including a white dwarf*
Ginski, C., Mugrauer, M., Adam, C., et al.
Astronomy and Astrophysics, 649, A156 (2021)

27. *The HD 206893 planetary system seen with VLT/SPHERE. Upper limit on the dust albedo and constraints on additional companions*
Romero, C., Milli, J., Lagrange, A.-M., et al.
Astronomy and Astrophysics, 651, A34 (2021)

Non-refereed publications

1. *Combining angular differential imaging and accurate polarimetry with SPHERE/IRDIS to characterize young giant exoplanets*
   van Holstein, R. G., Snik, F., Girard, J. H., et al.
   Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 10400, 1040015 (2017)

2. *A Planet with a Disc? A Surprising Detection in Polarised Light with VLT/SPHERE*
   Ginski, C., van Holstein, R. G., Juhász, A., et al.
   The Messenger, 172, 27 (2018)

3. *Lessons for WFIRST CGI from ground-based high-contrast systems*
   Bailey, V. P., Bottom, M., Cady, E., et al.
   Space Telescopes and Instrumentation 2018: Optical, Infrared, and Millimeter Wave, 10698, 106986P (2018)

4. *Original use of MUSE's laser tomography adaptive optics to directly image young accreting exoplanets*
   Girard, J. H., de Boer, J., Haffert, S., et al.
   arXiv e-prints, arXiv:2003.02145 (2020)

5. *SPHERE+: Imaging young Jupiters down to the snowline*
   Boccaletti, A., Chauvin, G., Mouillet, D., et al.
   arXiv e-prints, arXiv:2003.05714 (2020)

6. *Calibration of the instrumental polarization effects of SCExAO-CHARIS' spectropolarimetric mode*
   van Holstein, R. G., Bos, S. P., Ruigrok, J., et al.
   Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 11447, 114475B (2020)

7. *Planet formation with all flavors of adaptive optics: VLT/MUSE's laser tomography adaptive optics to directly image young accreting exoplanets*
   Girard, J. H., Haffert, S. Y., Bae, J., et al.
   Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 11448, 1144808 (2020)

8. *Full characterization of the instrumental polarization effects of the spectropolarimetric mode of SCExAO-CHARIS*
   't Hart, G. J. J., van Holstein, R. G., Bos, S. P., et al.
   Society of Photo-Optical Instrumentation Engineers (SPIE) Conference Series, 11833, 118330O (2021)

Curriculum vitae

I was born on December 10, 1990 in Delft, the Netherlands. In 2009 I received my secondary education diploma at the ISW Tiendweg in Naaldwijk. Subsequently, I started the Bachelor Aerospace Engineering at the Delft University of Technology. During the third year, I took astronomy and physics courses at the University of Amsterdam as part of the minor program. I received my bachelor's degree with distinction in 2013 and continued with the Master Aerospace Engineering in Delft, specializing in spaceflight. For my master internship project, I visited the European Southern Observatory (ESO) in Santiago, Chile, where, under supervision of Julien Girard and Jos de Boer, I worked on the commissioning and calibration of the polarimetric mode of SPHERE-IRDIS at the Very Large Telescope. I then visited the Leiden Observatory where I continued the calibration of SPHERE-IRDIS as part of my master thesis supervised by Daphne Stam, Frans Snik, and Jos de Boer. I obtained my master's degree with distinction in 2016 and received the NvVL (Dutch Society of Aeronautical Engineering) Wittenberg-award for best aerospace-engineering-related MSc thesis. After my graduation, I started a PhD at the Leiden Observatory with Christoph Keller and Frans Snik, of which this thesis is the result. During the PhD, I spent 20 months at ESO in Santiago as part of the studentship program under supervision of Julien Milli and Zahed Wahhaj. At the end of 2021, I will start as a fellow at ESO in Santiago where I will continue my work on high-contrast imaging polarimetry, in particular with SPHERE-IRDIS.

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