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Curriculum Vitae

I was born on June 11, 1986, in Hørsholm, Denmark. I was always fascinated by the night sky, but it was an astronomy course at Espergærde Gymnasium during my pre-university education that sparked the fire. Still, I was reluctant to choose astronomy as a career path. It was not before I experienced the night sky in its full, dark glory in the Australian outback that I realised that I had no choice but to follow my heart and study the Universe.

I enrolled in the Physics program at Copenhagen University in 2006 and obtained a Bachelor of Science degree in astronomy in 2010. My studies continued at Lund University where I completed a Master of Science degree in astrophysics in 2012. My master's thesis was about the photometric characterisation of a newly built Earthshine Telescope on Mauna Loa, Hawaii. The research project was a collaboration between the instrument department at Lund Observatory and the Danish Meteorological Institute (DMI), and I was supervised by Torben Andersen from Lund Observatory, and Peter Thejll and Hans Gleisner from DMI.

I accepted a PhD position at Leiden University, beginning September 2012, under the supervision of Prof.dr. Ignas Snellen. It was his work on characterising exoplanet atmospheres with high-dispersion spectroscopy which inspired me to aim for a career studying exoplanets. The original focus of my research was on hot Jupiter atmospheres, but gradually I shifted towards directly imaged planets, with a special interest in their formation and dynamical evolution. I developed a method for measuring the rotational velocity and the radial velocity of these planets and I set up a framework for how such measurements can be used to infer clues about the formation and early history of wide-orbit giant planets.

In 2016, I was awarded a Morrison Fellowship at the University of California Santa Cruz. I moved to California to begin my new Postdoc life in January 2017.

List of publications

Peer-reviewed publications

- *A framework to combine low- and high-resolution Spectroscopy for the Atmospheres of Transiting Exoplanets*
Brogi, M., Line, M., Bean, J., Desert, J.-M. & Schwarz, H.
ApJ, 839, L2 (2017)
- *Discovery of water at high spectral resolution in the atmosphere of 51 Peg b*
Birkby, J. L., de Kok, R. J., Brogi, M., Schwarz, H & Snellen, I. A. G.
AJ 153, 138 (2017)
- *The slow spin of the young sub-stellar companion GQ Lupi b and its orbital configuration*
Schwarz, H., Ginski, C., de Kok, R. J., Snellen, I. A. G., Brogi, M. & Birkby, J.L.
A&A 593, A74 (2016)
- *Rotation and winds of exoplanet HD 189733 b measured with high-dispersion transmission spectroscopy*
Brogi, M., de Kok, R. J., Albrecht, S., Snellen, I. A. G., Birkby, J. L. & Schwarz, H. ApJ 817, 106 (2016)
- *Evidence against a strong thermal inversion in HD 209458 b from high-dispersion spectroscopy*
Schwarz, H., Brogi, M., de Kok, R. J., Birkby, J. L. & Snellen, I. A. G.
A&A 576, A111 (2015)

- *Combining high-dispersion spectroscopy (HDS) with high contrast imaging (HCI): Probing rocky planets around our nearest neighbors*
Snellen, I. A. G., de Kok, R. J., Birkby, J. L., Brandl, B., Brogi, M., Keller, C., Kenworthy, M., **Schwarz, H.** & Stuik, R.
A&A 576, A59 (2015)
- *A search for TiO in the optical high-resolution transmission spectrum of HD 209458b: Hindrance due to inaccuracies in the line database*
Hoeijmakers, H. J., de Kok, R. J., Snellen, I. A. G., Brogi, M., Birkby, J. L. & **Schwarz, H.**
A&A 575, A20 (2015)
- *Fast spin of the young extrasolar planet beta Pictoris b*
Snellen, I. A. G., Brandl, B., de Kok, R. J., Brogi, M., Birkby, J. L. & **Schwarz, H.**
Nature 509, 63-65 (2014)
- *Carbon monoxide and water vapor in the atmosphere of the non-transiting exoplanet HD 179949 b*
Brogi, M., de Kok, R. J., Birkby, J. L., **Schwarz, H.** & Snellen, I. A. G.
A&A 565, A124 (2014)
- *Identifying new opportunities for exoplanet characterisation at high spectral resolution*
de Kok, R. J., Birkby, J. L., Brogi, M., **Schwarz, H.**, Albrecht, S., de Mooij, E. J. W. & Snellen, I. A. G.
A&A 561, A150 (2014)
- *The colour of the dark side of the Moon*
Thejll, P., Flynn, C., Gleisner, H., Andersen, T., Ulla, A., O-Petersen, M., Darudi, A. & **Schwarz, H.**
A&A 563, A38 (2014)
- *Detection of water absorption in the day side atmosphere of HD 189733 b using ground-based high-resolution spectroscopy at 3.2 micron*
Birkby, J. L., de Kok, R. J., Brogi, M., de Mooij, E. J. W., **Schwarz, H.**, Albrecht, S. & Snellen, I. A. G.
MNRAS 436, L35 (2013)

Conference proceedings

- *Molecules on the night-side of a non-transiting Hot Jupiter*
de Kok, R. J., Brogi, M., Birkby, J. L., **Schwarz, H.** & Snellen, I. A. G.
ESS 3, 111.16 (2015)
- *Measuring the spin of the directly imaged sub-stellar companion GQ Lupi b*
Schwarz, H., Brogi, M., de Kok, R. J., Birkby, J. L. & Snellen, I. A. G.
ESS 3, 104.14 (2015)
- *Detecting water at high spectral resolution in hot Jupiter atmospheres*
Birkby, J., Snellen, I., de Kok, R., Brogi, M., **Schwarz, H.**, Albrecht, S. &
de Mooij, E.
AAS 223, 230.04 (2014)
- *Exploring the atmosphere of HD 189733b at high spectral resolution*
de Kok, R., Birkby, J., Brogi, M., Snellen, I., Albrecht, S., de Mooij, E. &
Schwarz, H.
DPS 45, 105.02 (2013)
- *Probing hot Jupiter atmospheres with ground-based high-resolution spectroscopy*
Schwarz, H., Brogi, M., Birkby, J. L., de Kok, R. J., Snellen, I. A. G.,
de Mooij, E. J. W. & Albrecht, S.
EPSC 8, 44 (2013)
- *First results from new Earthshine telescope on Mauna Loa*
Thejll, P., Flynn, C., **Schwarz, H.**, Gleisner, H., Owner-Petersen, M., Darudi, A.
& Andersen, T.
EGUGA 14, 4975 (2012)

Other publications

- *Characterising exoplanet atmospheres with high-resolution spectroscopy*
Birkby, J., de Kok, R., Brogi, M., **Schwarz, H.**, Albrecht, S., de Mooij, E.
& Snellen, I.
Msngr 154, 57 (2013)

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