



Universiteit
Leiden
The Netherlands

Tracing life through light: towards detecting life on exoplanets with spectroscopy and spectropolarimetry

Mulder, W.

Citation

Mulder, W. (2026, April 2). *Tracing life through light: towards detecting life on exoplanets with spectroscopy and spectropolarimetry*. Retrieved from <https://hdl.handle.net/1887/4300414>

Version: Publisher's Version

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/4300414>

Note: To cite this publication please use the final published version (if applicable).

Propositions

accompanying the dissertation

Tracing life through light: Towards detecting life on exoplanets with spectroscopy and spectropolarimetry

1. High-resolution spectroscopy provides insights into atmospheric composition of brown dwarfs like no other observation method. (Chapter 2)
2. Circular spectropolarimetric measurements conducted from a hot air balloon can effectively distinguish between biotic and abiotic surface features. (Chapter 3)
3. Numerical diffraction simulations accurately reproduce linear-to-circular polarisation crosstalk induced by Fresnel diffraction effects behind a spatial polarisation modulator. (Chapter 4)
4. Spatial polarisation modulators based on patterned retarders induce a polarisation-dependent Talbot effect in the linear polarisation base. (Chapter 5)
5. The complexity of frequent malfunctioning lab equipment during fieldwork is systematically underestimated.
6. In academia, merit and effort are necessary, but not sufficient for success; luck remains an unacknowledged but decisive factor.
7. The academic system's tendency to under-report null or inconclusive results limits collective learning, as sharing all outcomes accelerates progress and efficiency.
8. Homochirality is not exclusive to biomolecules; astronomers, too, display it, having two left hands in the optical lab.
9. Failure is not only an option; it is an essential ingredient for innovation and resilience.
10. The appearance of effortless is built on unseen hours of relentless effort.
11. In both skydiving and life, true growth only begins the moment you dare to jump.
12. Baking pastries builds networks: few things connect colleagues faster than the shared joy of cake.

Willeke Mulder
Leiden, 2 april 2026