High-resolution integral-field spectroscopy of exoplanets

Haffert, S.Y.

Propositions accompanying the thesis

High-resolution integral-field spectroscopy of exoplanets

1. Adaptive-optics assisted spectrographs are smaller than their seeing-limited counterparts for equal telescope sizes.

   (Chapter 2)

2. Extreme adaptive optics enables the use of single-mode photonics.

   (Chapter 3)

3. Electric field sensitive components, such as single-mode fibers, can be used to increase starlight rejection without sacrificing planet throughput.

   (Chapter 4)

4. The ability to characterizing planets around the nearest stars, such as Proxima Centauri b, is already within the realms of current technology.

   (Chapter 5)

5. Visible integral-field spectroscopy is a powerful tool to search for accretion lines from proto-planets.

   (Chapter 6)

6. It is not necessary to record all the information. Sometimes less is more.

   (Chapter 7)

7. Novel optical materials and technology should be explored for exoplanet science because every little gain in sensitivity will be necessary for the next generation of planet imagers.

8. When searching for spectral features one should use an instrument with a spectral resolving power that is comparable to or higher than the intrinsic width of the line-profile of the spectral feature of interest.

9. Many currently known exoplanets can be characterized with adaptive-optics assisted spectrographs on Extremely Large Telescopes.

10. For rapid development of technology it is necessary to bring prototype instruments to telescopes for testing in real environments.

11. If a telescope catches fire, do not panic!

12. When making a press release about exoplanets, be prepared; there will always be aliens.

Sebastiaan Yannick Haffert
Leiden, September 2019