Towards Reconfigurable Wavefront Sensing Using a Spatial Light Modulator

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Introduction

A 0.345 THz single pixel camera has been set up. Reconstructed images always contain circular artefacts, which depend on the geometry of the setup. Comparing the artefacts with Fresnel Zone Lenses suggests that they result from interference effects of the coherent radiation. In addition to imaging, the spatial light modulator can be configured to serve as a Hartmann mask for wavefront sensing, as diffraction simulations indicate. An improvement employing Fresnel Zone Lenses instead of holes is expected.

Circular Imaging Artefacts

Analysis of Circular Imaging Artefacts

Theoretically calculated Fresnel Zone Lens (FZL)

Outlook: FZL based Shack-Hartmann Setup

Single Pixel Camera (SPC) Imaging Setup

Hartmann Wave Front Sensing Setup

References and Acknowledgements