

The mid-infrared channel of the EChO mission

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Abstract

The Exoplanet Characterisation Observatory, EChO, is a dedicated space mission to investigate the physics and chemistry of Exoplanet atmospheres. Using the differential spectroscopy by transit method, it will provide simultaneously a complete spectrum in a wide wavelength range between $0.4\mu\text{m}$ and $16\mu\text{m}$ of the atmosphere of exoplanets. It has been selected by ESA in its M3 Cosmic Vision program for a phase A study. The payload is subdivided into 6 channels. The mid-infrared channel covers the spectral range between $5\mu\text{m}$ and $11\mu\text{m}$. In order to optimize the instrument response and the science objectives, the bandpass is split in two using an internal dichroic. We present the opto-mechanical concept of the MWIR channel and the on-going detector development that drives the thermal and mechanical designs of the channel. The estimated end-to-end performance will also be presented.