
Multi-(sub)Aperture Fiber Nulling for Exoplanet Sciences

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Abstract

We will present simulation and laboratory demonstration for a novel technique, multi-aperture fiber nulling (MAFN). The technique combines nulling interferometry and high-resolution spectroscopy, taking advantage of the high spatial resolution brought by the nulling interferometry and the high contrast brought by the high-resolution spectroscopy. We show that with current facilities such as the Large Binocular Telescope Interferometer (LBTI) and future extremely large telescopes (ELTs), direct spectroscopy of radial velocity detected planets can be studied in unprecedented details to understand their origin of formation and search for biosignatures in their atmospheres.

Keywords: Exoplanet, Atmospheres, Nulling interferometer, High, resolution spectroscopy

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