

**A VISIBLE LIGHT NULLING INTERFEROMETER FOR IMAGING AND SPECTROSCOPY OF
NEARBY PLANETARY SYSTEMS**

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Abstract

This paper describes a new concept for a planet detection mission combining the advantages of a visible light coronagraph with those of a nulling interferometer. Our concept requires nulling technology that is only a small extension to the 10^{-6} suppression that has already been demonstrated in the laboratory. This instrument should be capable of detecting reflected light from an Earth-like planet at 10pc with a 4m aperture in about 50 hours of integration. A 1.5m aperture version would serve as both a technical and scientific precursor. Using current optical technologies, it would be capable of detecting a Jupiter-like planet at 15 pc and an Earth at 3 pc.