

Astronomical Telescopes and Instrumentation



Author Submission

Conference: **High-Contrast Imaging for Exo-Planet Detection (AS28)**

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Title:
A visible nulling coronagraph for detecting planets around nearby stars.

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Abstract:
We describe a nulling coronagraph that has several potentially very significant advantages for detection of Exo-Earths. The nuller uses a 4 subaperture Θ^4 null to suppress the light from a star, yet allow full transmission of planet light very nearby. In addition it makes use of single mode fibers to greatly relax the wavefront requirements of the telescope. A nulling coronagraph behind a 4m telescope with $\lambda/20$ wavefront can suppress the starlight by $1e-10$ while maintaining full transmission for planet light at 0.1arcsec from the star. This paper describes a possible visible TPF mission based on the nulling coronagraph.

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