

Expected Performance of a NIR Nulling Instrument on Board the Pégase Free-flying Demonstrator Mission

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In the context of the call for ideas issued by the French Space Agency (CNES) for a scientific mission on board a small free flying technology demonstrator, a group of French and other European institutes has proposed the concept of a near-infrared Bracewell nulling interferometer for hot Jupiter (Pegaside) detection. In this work, we investigate the performance of such an instrument, taking into account the technical limitations of Pégase and determine the specifications on critical subsystems (fringe tracker, pointing jitter, passive cooling) in order to detect a dozen Pegasides with a low spectral resolution (~ 50) across a large near-infrared waveband (1.5 to 6 μm) within a reasonable integration time.

