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OPTOELECTRONIC COUPLER BEHAVIOR

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**ABSTRACT**

Part of the NASA's Origin program is to look for earth-like planets. These planets are dim and need large expensive telescope in orbit. A less expensive and more accurate alternative is use of interferometry technique. NASA/JPL are working in developing technologies for Terrestrial Planet Finder (TPF) mission in 2015. In the path to TPF there are several other missions including the Space Interferometry Mission (SIM) mission in 2009.

SIM, depending on its complexity, may requires a large number of laser beam, e.g. 16 laser beams in one design. It would be less expensive to design a system based on one relatively powerful laser and use optical beam splitter to generate the 16 beams (not considering the second laser for redundancy). In this paper we will discuss the techniques that are being used to make optical beam splitter especially the state-of-the-art splitters, i.e., those with extremely high split capability of 16 or even 32. Technology for making reliable large beam splitter has not been matured enough, but it is developing rapidly mostly due to the need in the telecommunication industry. Characterization plots for the advanced optical beam splitter package of of 1x2, 1x4, 1x16, and 1x32 splitters before and plan for environmental exposures will be also presented.