

Conference: Toward Other Earths: Darwin/TPF and the Search for Extrasolar Terrestrial Planets

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Title: Search for Terrestrial Planets with SIM

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Abstract: SIM is an astrometric interferometer designed with 1 μ s single measurement accuracy. The paper will discuss two topics, (1) the SIM planet search program, which is the focus of two key project teams, (2) and the status of our laboratory efforts to demonstrate microarcsec astrometry technology. The SIM terrestrial planet search program is a search of 200~250 of the nearest stars for planets to ~ 3 Earth masses in a 1 AU orbit at 10pc. For planets whose orbits are known (from TPF), SIM will be able to set error bars on the mass at ± 0.5 Earth masses. In the recent past, the project has made significant progress in demonstrating μ s level measurement accuracy. We have demonstrated "narrow angle," 1 deg, relative astrometric accuracy at $\sim 1.5 \mu$ s level and passed the wide angle astrometry requirements as well.