Deployment of focal plane wavefront sensing on 8-meter telescopes and beyond

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Abstract

At NRC's NEW-EATH lab, we are developing the technologies to detect and study low mass planets at high contrast, inwards of 10 AU. In this talk, we present results and lessons learned from our testing and integration of focal plane wavefront sensing technologies including the FAST SCC. We will additionally, present our development progress on the Subaru pathfinder instrument SPIDERS, and upgrade to the facility class Gemini Planet Imager CAL subsystem. These instruments incorporate photon-counting SAPHIRA detectors to suppress non-common path aberrations at up to 100Hz. Finally, we will present some paths forward for high contrast imaging of habitable zones from 30-40m telescopes and our concept for orbital guide beacons.

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