

Characterizing Dusty Debris with the Gemini Planet Imager

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Some exoplanetary systems contain not only planets but also minor body belts, analogous to the asteroid and Kuiper belts in our Solar System. Planets in these systems gravitationally perturb minor bodies, placing them on crossing orbits where they collide, creating debris dust. Detailed studies of the scattered light from the debris dust can constrain the size and porosity of the grains and therefore the mechanisms by which the dust and parent bodies are processed. The Gemini Planet Imager (GPI) has provided high Signal-to-Noise Ratio (SNR) spectroscopic and polarimetric observations of predominantly bright, highly inclined debris disks. These observations enable detailed measurements of the total intensity and polarization fraction phase functions and the near-infrared reflected light spectrum. We present some recent results using GPI to constrain the properties of circumstellar dust in debris disks from the Gemini Large and Long Program "Characterizing Dusty Debris in Exoplanetary Systems".