

HUBBLE SPACE TELESCOPE
IMAGING SURVEY OF T TAURI STARS
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We report on an extensive deep imaging survey of nearby T Tauri stars using the WFPC2 camera the Hubble Space Telescope. The sample consists of 153 young stars, primarily drawn from five major star-forming clouds at distances between 140-160 pc. The targets were generally observed in R and I band filters. The goals of the study were to image reflection nebulosities tracing circumstellar disks and envelopes, and to image emission nebulosities tracing shocked outflows,

Extended nebulosity was detected in 52 sources. In 32 objects, reflected light from circumstellar envelopes was detected; the morphology ranges from symmetric bipolar cavities to irregular structures without obvious interpretation. Jet features were resolved in 15 objects, many for the first time. Most interesting are 10 sources where HST directly detects disks in scattered light.

For nearly 100 of the targets observed, however, HST/WFPC2 detects no nebulosity at all: only the stellar point spread function is seen. This includes 15 objects where millimeter interferometers have clearly resolved CO disks larger than 3 arcsec in diameter. Possible explanations for these non-detections are discussed.