

## Grain Processing in T Tauri Disks

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**Abstract.** The Spitzer Guaranteed Time Observations team IRS Disks acquired Infrared Spectrograph spectra of 13 Class II Young Stellar Objects in Taurus-Auriga and in the TW Hydra Association. All of the sources have broad 10 micron silicate emission features. Each 10 micron feature has a unique shape, indicating variation in composition and crystallinity of the silicate grains in the circumstellar disks of these YSOs. One of the sources, CoKu Tau /4, which apparently has very little disk material out to 10 AU, has a very smooth and narrow 10 micron emission feature, indicating the silicate grains composing its disk are amorphous and simple. The spectra of the other sources have more structured 10 micron features, indicating the presence of larger grains and/or crystalline silicates, which are believed to arise from processing of amorphous silicates. This processing apparently has not occurred for CoKu Tau /4, where the observable dust is cool (126 K). The dust emissivity is derived from the observed spectra and compared to grain models. For CoKu Tau /4, nonspherical amorphous olivine and pyroxene grains are indicated. These grains are believed to be unprocessed material; as such, they represent a primordial mixture from which to base the silicate emission modeling for other sources. For the sources with more complexity, crystalline pyroxenes, forsterite, quartz, and larger grains are necessary to fit the spectra.

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