

Investigating Star-disk Interactions with High Resolution Spectroscopy

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Abstract

Young stars, which host planet-forming circumstellar disks, display evidence of magnetic activity in the form of coronal and accretion generated X-ray emission. High resolution X-ray spectroscopy of young star-disk systems with instruments like Chandra-HETG can distinguish between these X-ray generating mechanisms and, when coupled with optical spectroscopy, can elucidate physical conditions of the accretion shock region. We present near-simultaneous Chandra high-resolution X-ray and SSO optical H-alpha spectroscopy observations of the two actively-accreting star-disk systems T Cha and RY Lup. Both systems have highly inclined viewing geometries and we investigate star-disk interactions in the form of accretion, flaring, and variability arising from inner disk warps rotating into and out of our line of sight.