ABSTRACT ONLY-ORAL

THE FREQUENCY OF BINARY STARS INTERLOPERS AMONGST TRANSITIONAL DISKS.

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Using Non-Redundant Mask interferometry (NRM), we performed a binary study objects previously classified as Transitional Disks (TD). These objects are thought to be an evolutionary stage between an optically thick disk and optically thin disk. We investigate the presence of a stellar companion as a possible mechanism of material depletion in the inner region of these disks, ruling out an ongoing planetary formation process in distances comparable to the binary separation. For our detection limits, we implement a new method of completeness correction using a combination of randomly sampled binary orbits and Bayesian inference. The selected sample of 24 TDs belong to the nearby and young star forming regions: Ophiuchus ($\sim$ 130 pc), Taurus-Auriga ($\sim$ 140 pc) and IC348 ($\sim$ 220 pc). These regions are suitable to resolve faint stellar companions with moderate to high confidence levels at a distance of $\gtrsim$ 2 AU from the central star. With a total of 32 TDs, including 10 known TDs from the literature, we have found that a fraction of $\sim 0.40 \pm 0.09$ of the SEDs of these TDs are likely due to the tidal interaction between a close binary and its disk, while the remaining SEDs are likely the result of other internal processes such as photoevaporation, grain growth, planet disk interactions, etc. In addition, we detected three binary companions orbiting outside the area of the truncation radii and we proposed that the IR excesses of these systems are due to a disk orbiting a substellar secondary companion, producing similar SEDs as the single or/and close binary stars surrounded by more "evolved" disks.

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