

SATURATED MASER RADIATION FROM A CIRCUMSTELLAR, KEPLERIAN DISK

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Calculational methods and results will be presented for the emergent maser radiation from a thin, gaseous disk undergoing Keplerian rotation. The parameters that describe the masing and the disk are intended to reflect those of disks around young stars. Saturation by the maser radiation—which is likely to be present—has not previously been incorporated into such calculations in astronomy. Saturation causes the velocity distribution of excited, masing molecules to deviate from Maxwellian (“hole burning”) and greatly increases the calculational challenge. Comparisons will be made with observational data.