

MAGNETIC FIELDS IN PROTOPLANETARY DISKS: NEW LIMITS FROM ZEEMAN SPLITTING OBSERVATIONS

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Magnetic fields are thought to play a crucial role in the formation and evolution of protoplanetary disks by providing a means of angular momentum transport through the magnetorotational instability and/or magnetically driven winds. However, finding observational evidence for the presence of magnetic fields in disks has proven difficult. Zeeman splitting observations offer a way to directly measure or put upper limits on line-of-sight magnetic field strengths in astronomical sources, as the circularly polarized signal produced by Zeeman splitting depends directly on the magnetic field strength along the line of sight. We present the results of ALMA observations of the CN 2-1 line in two disks: AS 209 and V4046 Sgr. The upper limits on net line-of-sight magnetic field strengths derived from these observations and their implications for the overall disk magnetic field strength and morphology will be discussed.