

# ALMA CN ZEEMAN OBSERVATIONS OF AS 209: LIMITS ON MAGNETIC FIELD STRENGTH AND MAGNETICALLY DRIVEN ACCRETION RATE

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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. 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 upper limits on the toroidal and vertical magnetic field strengths in the Class II protoplanetary disk AS 209 from ALMA observations of the CN 2-1 line. If magnetic disk winds are a significant mechanism of angular momentum transport in the disk, magnetic fields of a strength close to our upper limits would be sufficient to drive accretion at the rate previously inferred for regions near the protostar.