

Title:

Winds, outflow, and accretion: mass transit in young stellar objects

Abstract:

Magnetically mediated mass transfer in pre-main sequence systems plays an important role in early stellar and protoplanetary disk evolution, but is difficult to observe and interpretations of observations remain ambiguous. The long-standing "angular momentum problem," so named for the quantity not being conserved, has remained an obstruction to understanding stellar rotational evolution since the first observations that showed slow rotators among young, lower-mass, still-contracting populations. At slightly higher mass, recent spectropolarimetric surveys have found these stars lack sufficiently strong magnetic fields to support a magnetospheric accretion paradigm as originally envisaged for the lower mass population. In this talk, I will present three vignettes in mass transit: first, I will discuss mass loss for young, solar-like stars (T Tauri Stars), highlighting recent results from applying the solar-stellar connection. Then I will share results from our group's spectroscopic survey of intermediate mass young stars (Herbig Ae/Be stars), focusing on time series observations and radiative transfer modeling. Finally, I will share the status of new observations of a "superflaring" solar-type star and discuss whether we residents of 1 AU should be concerned.