

Conference: 217th American Astronomical Society Conference

Location: Seattle, WA

Dates: 1/9/2011 – 1/13/2011

Title: “VLA Ammonia Observations of IRAS 16253-2429: A Very Young and Low Mass Protostellar System”

Presenter: Jennifer J. Wiseman

Abstract:

IRAS 16253-2429, the source of the Wasp-Waist Nebula seen in Spitzer IRAC images, is an isolated, very low luminosity (“VeLLO”) Class 0 protostar in the nearby rho Ophiuchi cloud. We present VLA ammonia mapping observations of the dense gas envelope feeding the central core accreting system. We find a flattened envelope perpendicular to the outflow axis, and gas cavities that appear to cradle the outflow lobes as though carved out by the flow and associated (apparently precessing) jet. Based on the NH₃ (1,1) and (2,2) emission distribution, we derive the mass, velocity fields and temperature distribution for the envelope. We discuss the combined evidence for this source as possibly one of the youngest and lowest mass sources in formation yet known.