

Interferometric studies of the Cep-A HW2 region: the disk that wasn't

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Abstract.

Cepheus A East is one of the closest known regions of massive star formation. This object displays a large-scale outflow, which has been observed by many authors in a variety of molecular tracers (cf. Gomez et al. 1999 and references therein), and which seems to originate close to the radio-continuum source HW2.

In the last two years, we have carried out sub-arcsec-resolution PdBI observations of high-density and shock tracers such as SO₂, SiO, CH₃CN, and CH₃OH towards the center of the outflow. This experiment shows very clearly that the dense gas around HW2 is distributed perpendicularly to the axis of the flow. Moreover, some of the above-mentioned species, particularly SO₂ and CH₃CN, even show a velocity gradient along the major axis of the elongated “blob”, which seems compatible with the presence of a rotating accretion disk.

However, a detailed analysis of the spatial distribution and of the velocity field traced by **all** observed species leads us to conclude that the Cep-A “disk” is actually the result of the superposition of multiple molecular outflows with at least one hot-core-type object.

References

Gomez et al. 1999, *ApJ* 514, 287