

[ST03] The distribution of the physical parameters of a protostellar disc

Seung-Hoon Cha

Korea Astronomy and Space Sciences Institute (KASI)

The physical parameters, temperature and density distribution on the protostellar disc is important not only because they determine the structure of the disc but also they affect strong influence on the resultant spectral distribution (SED). Radiation hydrodynamical simulations have been performed to unveil the detailed structures of the disc. They are fully three-dimensional simulations, so we can draw the vertical distribution of the parameters also. We have a plan to make a more precise numerical model of the star-disc system, and the model should be compared to the observations by large ground-based telescope (e.g. KLT) and/or IR space telescopes (e.g. Astro-F).

[ST04] VLBA observations of 43-GHz SiO masers in R Cas

이지윤

한국천문연구원

Results of VLBI observations of 43-GHz SiO masers will be presented. SiO masers are considered as unique tools of the extended atmosphere of oxygen-rich, late-type stars on the Asymptotic Giant Branch stars. Simultaneous observations of SiO masers in the $v=1$ and $v=2$, $J=1-0$ transitions toward a Mira variable R Cas were conducted over four epochs. Partial ring structures were observed at all four epochs; diameters are similar for three epochs within the same stellar cycle, while for the first epoch, which is two stellar cycles earlier, the inner radius of the maser ring is significantly smaller. This indicates large cycle-to-cycle variations of SiO masers in the structure of R Cas. Observational results in relation to SiO maser pumping mechanisms will be discussed and comparisons with IR/optical high resolution observations of R Cas will be given.