

ON THE MASSES OF THE CIRCUMSTELLAR DUST DISKS
AROUND THE YSO's R Mon AND R50

Luis Carrasco¹, Irene Cruz-González¹
and Gary L. Grasdalen²

1. Instituto de Astronomía, Universidad Nacional
Autónoma de México.
2. Wyoming Infrared Observatory, USA

ABSTRACT. We have estimated the masses associated with the circumstellar disks associated with the Young Stellar Objects R Mon and Reipurth 50 from 2 by 3 arcminute deep maps at 1.25 and 2.2 μm . The maps have limiting surface brightness of 20.8 and 19.9 magnitude per square arcsec.

Under the assumptions: i) the intrinsic luminosity of the associated bipolar nebulae is symmetric with respect to the central object and ii) the gas to dust ratio is 100, the masses of the circumstellar disks in R Mon and R50 are 50 and 3 M_{\odot} respectively as estimated from the dimensions of the obscuring region and the differential extinction inferred from the observed fluxes for the two sides of the nebulae. The masses reported here for the disks are somewhat larger than those derived from molecular column densities at radio wavelengths, probably indicating that the depletion of heavy elements (molecules) into dust grains is higher than in the interstellar medium in general. An important inference is that the mass of the disk apparently scales with the mass of the central object.

Key words: STARS-CIRCUMSTELLAR SHELLS — INFRARED-PHOTOMETRY

DISCUSSION

CALVET: ¿Obtuvieron fotometría en el caso de R Mon en la región norte de la nebulosa hacia los objetos HH? En caso afirmativo, ¿Qué resultados tuvieron?

CARRASCO: Hemos construido mapas hasta la región que contiene los objetos HH; no detectamos fuentes brillantes, pero no hemos reducido con cuidado la región a bajo brillo superficial. Pronto tendremos los resultados, por ahora no podemos decir más.

Luis Carrasco and Irene Cruz-González, Instituto de Astronomía, UNAM, Apartado Postal 70-264,
04510 México, D.F., México.

L. Grasdalen: Wyoming Infrared Obs., University of Wyoming, Laramie, WY 82071, USA.