PROTOSTELLAR CANDIDATES IN W75N

C.M. Mountain, I. Gatley, T.W. Hartquist, S.K. Leggett, M.J. Selby
UKIRT, 900 Leilani St., Hilo, HI 96720, USA

W75N is a highly obscured region containing far-infrared sources, masers and molecular clouds. New results are presented showing highly reddened point sources near the maser source W75N(OH). One of these sources appears to be illuminating a newly discovered reflection nebula exhibiting large scale fluorescent molecular hydrogen.

NEAR-INFRARED SOURCES IN THE COMPLEX H II REGION NGC 6357

P. Persi, M. Ferrari-Toniolo
Istituto Astrofisica Spaziale, CNR, CP 67,00044, Frascati, Italy
M. Roth, M. Tapia
Instituto de Astronomía, Universidad Nacional Autónoma de México, Apdo. Postal 877, Ensenada, B.C. México

We have searched for the near-infrared emission from selected areas of the star forming region NGC 6357. Six fields of 90×90 arcsec^2 centered on the far-IR peaks G353.19+0.91, G353.22+0.67, G353.13+0.64, G353.05+0.56, on the 6-cm radio continuum peak G353.035+0.78, and on the water maser source H_2O353.27+0.64, were scanned through the K(2.2 μm) filter at the 2.1-m telescope of the Observatorio Astronómico Nacional at S. Pedro Mártir, Baja California, México.

Twenty-one sources were found to a flux limit in K of ∿67 mJy (3σ). J,H,K, and L photometry were collected for most of the detected sources. To separate the effects of interstellar reddening from IR excess due to emission from dust or a gas envelope, the colours of the sources were plotted in a (J-H, H-K) diagram. From this diagram it follows that seven sources are reddened background stars, while eight sources have significant IR excess, and most likely are related to the star forming region NGC 6357. Three of these sources are located within the bright visible nebula G353.19+0.91, and are coincident with the peaks of the 10 and 20 microns maps. Their energy distributions between 1 to 20 μm, imply luminosities of the order of 10^4-10^5 $L_\odot$, and the 8-13 μm CVF spectrum of Irs1 shows "silicates" in absorption with $\tau_{9.7} \cong 2(A_V \cong 30)$. The other IR sources associated with the complex region, result to be less luminous, and their colours are very similar to those of T-Tau stars.

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The presence of massive and low mass objects in NGC 6357, suggests that a unique triggering mechanism cannot explain the star formation process in this complex region.

THE STAR FORMATION REGION ASSOCIATED WITH THE COMETARY NEBULA GM24

M. Tapia, M. Roth, L.F. Rodríguez, J. Cantó
Instituto de Astronomía, Universidad Nacional Autónoma de México, México
P. Persi, M. Ferrari-Toniolo
Istituto Astrofisica Spaziale, CNR, Frascati, Italy.
J.A. López
Department of Astronomy, University of Manchester, U.K.

GM24 is a small visible nebulosity in the vicinity of a molecular cloud. In this contribution we present the results of continuum (6-cm) and CO line (J = 1 → 0) radio observations, infrared maps, broad-band photometry and low-resolution spectroscopy as well as long-slit Echelle Hα spectroscopy. We found evidence that the GM24 = PP85 nebula is part of a larger region where star formation occurred in the past 10^4 years; the region is embedded in a typical molecular cloud with a dimension of $\sim$ 10 pc and mass of $\sim 10^4$ $M_\odot$. A compact radio H II region seems to be associated with GM24 and with one of the mid-infrared peaks detected. The nebula is most probably the visible part of an embedded H II region that is starting to emerge from the cloud. The other infrared peaks found in its vicinity ($\sim$ 1 pc) are probably associated with less evolved stellar objects. The complex also shows an extended near-infrared flux which we believe to arise in a reflection nebula. From energy arguments, we found that the luminosity required to power the H II region and keep the cloud at the observed large temperature ($T_K \cong 33$ K), is $\sim 10^5$ $L_\odot$ which is consistent with the infrared total flux from the present measurements and those from IRAS of 4×10^4 $L_\odot$; this corresponds to the flux of $\sim$3 B0 ZAMS stars. The details of the present work have appeared in the Revista Mexicana de Astronomía y Astrofísica, Volume 11, 83, 1985.

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