

rom these observations. These results are compared with those obtained from other types of observations in order to have a complete view and in order to search for possible association with H II regions as it seems to be the case in Magellanic Clouds SNRs.

It was found that RCW 86 is associated with an I II region and, consequently, the supernova (SN) progenitor is a massive star confirming the suggestion of Westerlund (1969, AJ, 74, 879), which had been questioned in more recent works. It was found, also, that this SNR has an age of 4×10^4 yr implying that it was not formed by the explosion of the historical SN AD 185 as it had been suggested by Clark & Stephenson (1977, in *The Historical Supernovae*, ed. Bergamon Press, Oxford, p. 83).

The observations on the SNR MSH 15-56 reveal a complete spherical shell of 36 arcmin diameter while previous observations have detected only the brightest filaments. Our results show that MSH 15-56 is associated also with an H II region. It is found that this SNR is in the radiative phase of evolution.

The SNR MSH 11-61 has a radial velocity field which suggests a regular radial expansion. The slow shock velocity derived this way is in agreement with the low [O III]/H α line-ratio derived from spectroscopy.

THE O⁺⁺/H⁺ ABUNDANCE RATIO IN GASEOUS NEBULAE DERIVED FROM RECOMBINATION LINES

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We present O⁺⁺/H⁺ values for the Orion nebula, M17 and NGC 6572 which are independent of the temperature structure of the observed nebulae based on O II and H I recombination lines. In the H II regions sampled (Orion and M17) the O⁺⁺/H⁺ values derived from O II recombination lines are about a factor of two higher than those derived from O III forbidden lines. These differences can be accounted for by the presence of spatial temperature variations over the observed volumes. The abundances derived from the recombination lines eliminate the O/H discrepancy between the stellar values and the H II region values of the solar neighborhood.

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INTERSTELLAR MATTER IN THE REGION OF THE OPEN CLUSTER IC 4665

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We studied the distribution of obscuring material in the region of IC 4665. The interstellar extinction was determined for F8-M2 type stars brighter than 13.5 mag in a 19.5 square degree field (Frontó et al. 1990, Mitt. Sternwarte Ung. Ak. Wiss., No. 95). In the direction of IC 4665 the mean $E(B - V)$ color excess is only 0.15 mag. However, on a larger scale a stronger absorption feature (up to 0.45 mag) appears close to the cluster. Plotting a Wolf-diagram for the apparent B distance moduli of stars, there is a clear indication for an interstellar cloud at 160 pc. Since the distance of IC 4665 is 320 pc, this cloud is a foreground object while the vicinity of the cluster is free of obscuring material. The cloud shows possible physical connections with a larger object which appears on the map of Khavtassi (1960, Atlas of Galactic Dark Nebulae, Abastumani Astrophys. Obs., No. 743) between the Serpens and Ophiuchus molecular clouds.

We compared the *IRAS* sky flux maps with our data. The field is divided into two parts (at $l \approx 30^\circ$) with different extinction values. We studied this field using the Heiles-Habing (1974, A&AS, 14, 1) H I survey. The interstellar matter appears between -10 and 0 km s^{-1} .

Hackwell et al. (1991, ApJ, 375, 163) investigated the interstellar matter in this area. They suggested that the obscuring material in this region is associated with the outskirts of the ρ Oph dark cloud. Our distance estimate supports their statement, but the radial velocities are different.

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THE LOW LUMINOSITY CENTRAL STAR OF THE PN ESO 166-21

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We present low dispersion UV and optical spectrophotometry of the central star of the PN ESO 166-21. The stellar spectrum, from 1200 to 6600 Å, is a featureless continuum. The energy distribution is consistent with a black body of $120\,000 \pm 20\,000 \text{ K}$. The observed visual magnitude is 18.1. Ruiz et al. (1989, IAU Symp. 131, p. 192) showed that the nebula is very extended ($\Phi = 160 \text{ arcsec}$) with a spherical shape and bright knots. The emission lines indicate a high ionization degree and the chemical