rom these observations. These results are compared vith those obtained from other types of observations n order to have a complete view and in order to earch for possible association with H II regions as it eems 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) rogenitor is a massive star confirming the suggestion f Westerlund (1969, AJ, 74, 879), which had been uestioned in more recent works. It was found, also, hat this SNR has an age of 4×10^4 yr implying that t was not formed by the explosion of the historical N AD 185 as it had been suggested by Clark & tephenson (1977, in The Historical Supernovae, ed. ergamon Press, Oxford, p. 83).

The observations on the SNR MSH 15-56 reveal a omplete spherical shell of 36 arcmin diameter while revious observations have detected only the bright- st filaments. Our results show that MSH 15-56 is ssociated also with an H II region. It is found that his SNR is in the radiative phase of evolution.

The SNR MSH 11-61 has a radial velocity field vhich suggests a regular radial expansion. The slow hock velocity derived this way is in agreement with he low [O III]/Hα line-ratio derived from spec- roscopy.

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 modulii 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 $l \approx 30°$) 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 A, is a featureless continuum. The energy distribution is consistent with a black body of $120\,000 \pm 20\,000$ K. The observed visual magnitude is 18.1. Ruiz et al. (1989, IAU Symp. 131, p. 192) showed that the nebula is very extended ($\Phi = 160$ arcsec) with a spherical shape and bright knots. The emission lines indicate a high ionization degree and the chemical

composition shows He and N enrichment, typical of PNe with massive progenitors. We found a nebular expansion velocity of 28 km s^{-1}. From these parameters we derived a distance of 1.0 ± 0.2 kpc and we estimate a stellar luminosity of $L/L_{\odot} \cong 20$ and a radius of $R/R_{\odot} \cong 0.01$. From the theoretical evolutionary tracks in the H-R diagram (Shaw & Kaler 1989, ApJS, 69, 495) we obtain a mass of about 1 $M_{\odot}$ and log $g = 8.4$ for this star. These parameters correspond to one of the most evolved central stars of PNe indicating that this object is already in the white dwarf cooling sequence. Only a few objects have been reported with these characteristics, among them NGC 7293, A 21 and A 31. These rare objects are very important in the study of the link between white dwarfs and their precursors.

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LUMINOSITY FUNCTION OF THE STARS IN THE GALACTIC BULGE

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We construct the observed Luminosity Function (LF) of a sample of stars in the low obscuration region known as Baade's Window (BW). This LF is shifted by ~1.5 mag towards brighter bolometric magnitudes with respect to that published by Frogel & Whitford (1987, ApJ, 320, 199). This has been interpreted as produced by observations of slightly different stellar populations in the same area due to the way the stars have been selected. The observed LF may be separated into two Gaussian components; they are respectively associated with the bulge and disc contributions. The component which we claim represents the disc contribution in BW may be reproduced reasonably well by projection and integration of the M giants' LF in the solar neighborhood. This fact lends support to our associating the wide component of the observed LF with a disc-like stellar population. Values for the characteristic radii for the bulge (~1.1 kpc) and for the disc (~2.3 kpc) are derived.

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A CODE TO COMPUTE STELLAR MASSES ONTO THE H-R DIAGRAM

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We have written a code to determine the initial and present mass of a star located on the H-R diagram. The code is based on an interpolation procedure between the two adjacent evolutionary tracks where the star is located according to its luminosity and temperature (M_V and color index). With just a few modifications the code may be used with any set of evolutionary tracks, be they computed with or without mass loss. Considering that several evolutionary tracks may pass by the same locus on the H-R diagram, the stellar mass obtained from the star's position may be rather ambiguous. Our code takes into account all possible solutions.

RECENT ADVANCES IN THE DEVELOPMENT OF THE UNAM SCANNING FABRY-PEROT INTERFEROMETER (PUMA) FOR THE STUDY OF INTERSTELLAR MEDIUM

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"PUMA" is an instrument for the study of the kinematics of the gas in cosmic nebulae. It is being developed for the 2-m F/7.9 Ritchey-Chretien telescope of the National Astronomical Observatory (OAN-SPM) at San Pedro Mártir.

The system is an instrument consisting of a focal reducer coupled to a Queensgate scanning Fabry-Perot interferometer (SFPI). The images or interference patterns of a sky region obtained at different wavelengths will be focused by an objective on an optoelectronic detector, a CCD or a Mepsicron depending on the spectral range used.

It has a set of interference filters, a calibration system and field diaphragms to isolate regions of interest. The SFPI can be moved out of the optical path in order to acquire direct images, or to allow the integration of another optical elements.

"PUMA" will provide: a) Direct imagery with or without interference filters. b) Interferograms at Hα (λ6563 A), [N II](λ6589 A), [O III](λ5007 A), and [S II](λ6717 A).

The selection of optical materials was based on a design made at Marseilles Observatory to achieve an apochromatic system, covering the desired wide