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 an[d] present mass of a star located on the H-R diagram The code is based on an interpolation procedure be- tween the two adjacent evolutionary tracks where th[e] star is located according to its luminosity and tem- perature (M_V and color index). With just a fe[w] modifications the code may be used with any set o[f] evolutionary tracks, be they computed with or with- out mass loss. Considering that several evolutionar[y] tracks may pass by the same locus on the H-R dia- gram, the stellar mass obtained from the star's posi- tion may be rather ambiguous. Our code takes int[o] account all possible solutions.

RECENT ADVANCES IN THE DEVELOPMENT OF THE UNAM SCANNING FABRY-PEROT INTERFEROMETER (PUMA) FOR THE STUD[Y] 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 o[f] 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 o[n] an optoelectronic detector, a CCD or a Mepsicron depending on the spectral range used.

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

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

The selection of optical materials was based o[n] a design made at Marseilles Observatory to achiev[e] an apochromatic system, covering the desired wid[e] pectral range, from ultraviolet (λ3650 A) to infrared λ8650 A).

The étalon and CS-100 Queensgate controller uses apacitive micrometers and piezoelectric actuators ogether with a feedback control system in order to ninimize the errors. The CS-100 allows for the adustment of the servosystem parameters, the paralelism, and the separation between plates with a reponse time of 0.5 seconds in steps of 0.5 nm.

A measure of the sharpness of interference fringes s given by its FWHM. This measurement indicates ıow rapidly the irradiance falls to either side of the naximum. Another quantity of particular interest is he ratio between the separation of adjacent maxima ınd the FWHM known as "Finesse".

The CS-100 functions are capable of operating hrough a control bus which permits its remote ontrol by means of an octagon microcomputer PC5080) based on a 64180 12-bits processor. All his system will be supervised by a Sun or PC486 ıost computer.

EVOLUTION OF SUPERNOVA REMNANTS

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Ve are currently making a comprehensive study f the evolution of supernova remnants under a vide variety of interstellar conditions. These conlitions cover the range of observed parameters for he medium surrounding the supernova progenitors, nd a detailed description of the models will be preented elsewhere. The simulations are done with the wo-dimensional hydrodynamical code described by lóżyczka (1985, A&A, 163, 59). The essential feaures of this code are the second-order accuracy in patial coordinates and the axial symmetry imposed n modeled flows. The cylindrical grid was composed f 100 × 100 points in the R and z coordinates, covring a physical area of $2 \times 10^{18} \times 2 \times 10^{18}$ cm^2.

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HIGH VELOCITY EJECTA FROM ETA CARINAE

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Recent *HST* imagery of Eta Carinae (Hester et al. 1991, AJ, 102, 654; Ebbets et al. 1993, 34th Hertsmonceux Conference, in press) show remarkable structures in this system arising from the major shell ejection episode during the mid-19th century from a (once!) LBV star. This high resolution structure is compared with numerous velocity features evident on longslit echelle spectra of several locations across the Eta Car system taken with the CTIO 4-m telescope. Radial, tangential, and space velocities for the various parts of the complex system are presented. The highest velocity structures are consistent with being ejected in the mid-19th century, although numerous slower moving (previously ejected) components in the system are evident as well.

Overall, the kinematics of the different parts of the system are consistent with the basic shell model of Hester et al., except that the "South Ridge" is now interpreted to be a previously ejected shell (~300 yrs old; $v_{exp} \approx 800$ km s^{-1}) –rather than just limb-brightened "cap" of emitting material. Finally, the *HST* imagery of the Ridge show numerous small knots embedded in the more diffuse ridge material, which apparently are the high velocity knots ($v \sim 10^3$ km s^{-1}) previously noted by Dufour (1989, RevMexAA, 18, 87).

GAS AND DUST OF W49A

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The W49A molecular cloud complex is one of the most active star forming regions in the Galaxy. A ring of over a dozen compact H II regions ionized by O4-O7 stars with rotation are found within an area of 1 or 2 arcmin (several pc at the adopted distance of 12 kpc) in diameter. They are associated with a massive core with $M_c \sim 10^5\ M_{\odot}$.

We have obtained 450 μm and 1100 μm maps by using a JCMT 15-m telescope. Both maps covered only the northern region of W49 (W49N). The peak flux densities are 510 Jy/beam and 30.8 Jy/beam at 450 μm and 1100 μm, respectively. The 450 μm map resembles the ^{13}CO map (Miyawaki et al. 1994, in preparation) with the extent of 30 × 30 arcsec^2 ($\alpha \times \delta$) at half maximum level. The 450 μm map has two elongations; one is towards the southeast, and the other in the northeast-southwest direction. The 1100 μm map resembles a CS map (Miyawaki et al. 1986, ApJ, 305, 353) and 1-mm continuum