

pectral range, from ultraviolet ( $\lambda 3650$  Å) to infrared ( $\lambda 8650$  Å).

The étalon and CS-100 Queensgate controller uses capacitive micrometers and piezoelectric actuators together with a feedback control system in order to minimize the errors. The CS-100 allows for the adjustment of the servosystem parameters, the parallelism, and the separation between plates with a response time of 0.5 seconds in steps of 0.5 nm.

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

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

## EVOLUTION OF SUPERNOVA REMNANTS

A. Santillán<sup>1,2</sup>, M. Różyczka<sup>3</sup>,  
J. Franco<sup>1</sup>, and G. Tenorio-Tagle<sup>4</sup>

We are currently making a comprehensive study of the evolution of supernova remnants under a wide variety of interstellar conditions. These conditions cover the range of observed parameters for the medium surrounding the supernova progenitors, and a detailed description of the models will be presented elsewhere. The simulations are done with the two-dimensional hydrodynamical code described by Różyczka (1985, A&A, 163, 59). The essential features of this code are the second-order accuracy in spatial coordinates and the axial symmetry imposed in modeled flows. The cylindrical grid was composed of  $100 \times 100$  points in the  $R$  and  $z$  coordinates, covering a physical area of  $2 \times 10^{18} \times 2 \times 10^{18}$  cm<sup>2</sup>.

Instituto de Astronomía, Universidad Nacional Autónoma de México.

DGSCA, Universidad Nacional Autónoma de México.

Warsaw University, Astronomical Observatory, Poland.

Instituto de Astrofísica de Canarias, Spain.

## HIGH VELOCITY EJECTA FROM ETA CARINAE

R.J. Dufour

Rice University, U.S.A., and  
Instituto de Astronomía, UNAM, México

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 ( $\sim 300$  yrs old;  $v_{exp} \approx 800$  km s<sup>-1</sup>)—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<sup>-1</sup>) previously noted by Dufour (1989, RevMexAA, 18, 87).

## GAS AND DUST OF W49A

R. Miyawaki<sup>1</sup>, M. Hayashi<sup>2</sup>, and T. Hasegawa<sup>3</sup>

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  $\mu$ m and 1100  $\mu$ m 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  $\mu$ m and 1100  $\mu$ m, respectively. The 450  $\mu$ m map resembles the <sup>13</sup>CO map (Miyawaki et al. 1994, in preparation) with the extent of  $30 \times 30$  arcsec<sup>2</sup> ( $\alpha \times \delta$ ) at half maximum level. The 450  $\mu$ m map has two elongations; one is towards the southeast, and the other in the northeast-southwest direction. The 1100  $\mu$ m map resembles a CS map (Miyawaki et al. 1986, ApJ, 305, 353) and 1-mm continuum