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

A. Santillán[1,2], M. Różyczka[3], J. Franco[1], and G. Tenorio-Tagle[4]

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, ınd a detailed description of the models will be preented elsewhere. The simulations are done with the wo-dimensional hydrodynamical code described by Różyczka (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.

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 (~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

R. Miyawaki[1], M. Hayashi[2], and T. Hasegawa[3]

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

emission map (Westbrook et al. 1976, ApJ, 209, 94) with the extent of 40 × 30 arcsec^2 ($\alpha \times \delta$) at the half maximum level. The 1100 μm map has three elongations; one is towards the southeast as the 450 μm, the second is in the northwest direction, the third is in the northeast-southwest direction like the 450 μm map. Another weak elongation towards the north is seen. The northern elongation seems to be the same feature which is seen in the CO, ^{13}CO, HCO$^+$ integrated intensity maps. W49N has 20% of the flux density at 1100 μm as free-free emission. The mass is estimated as $1 \times 10^5\, M_\odot$.

The spectral index map between 450 μm and 1100 μm has a minimum at the position of the compact sources. This is the opposite of the results Sievers et al. (1991, A&A, 251, 231) obtained, that is that the spectral index has a maximum value toward W49N. The interpretation of our results is that the compact sources become optically thick and the spectral index approaches $\alpha = 3$ held for optically thick dust. In the outer optically thin region of the map, the spectral index approaches $\alpha \sim 4$. Another interpretation is that the dust emissivity index, β value, is ~ 1 at $\lambda \leq 800$ μm due to a wavelength effect .

[1] Dept. of Science Education, Fukuoka University of Education, Japan.
[2] Dept. of Astronomy, The University of Tokyo, Japan.
[3] Institute of Astronomy, The University of Tokyo, Japan.

A CRITICAL COMPILATION OF OSCILLATOR STRENGTHS FOR Fe II LINES

Sunetra Giridhar
Indian Institute of Astrophysics, India
and
A. Arellano Ferro
Instituto de Astronomía
Universidad Nacional Autónoma de México

We have compiled oscillator strengths for Fe II lines of astrophysical interest. In our compilation we have brought oscillator strengths from various sources (laboratory measurements, semi-empirical values and those derived using solar Fe II lines) to one scale by applying necessary corrections. Furthermore, we have calibrated empirical relations, valid in restricted ranges of excitation potential, that predict oscillator strength values (log gf) given the wavelength (log λ), the lower excitation potential (E_l) and the line intensity (log I). These can be used to calculate the gf value for Fe II lines with unknown gf value.

UVSTAR, A SPECTROGRAPHIC TELESCOPE FOR THE SHUTTLE HITCHHIKER-M BRIDGE

R. Stalio[1,2], B.R. Sandel[3], A.L. Broadfoot[3], and M. Chávez[4,5]

UVSTAR (UltraViolet Spectrographic Telescope for Astronomical Research) is an Extreme and Far Ultraviolet (EUV/FUV) spectral imager intended as a facility instrument devoted to astronomy and solar system studies. *UVSTAR* consists on a pair of telescopes and concave-grating spectrographs that cover the overlapping ranges 500–900 A and 850–1250 A. The experiment has the capability of long slit spectral imaging of extended sources such as planets, H II regions, planetary nebulae and supernova remnants. *UVSTAR* is an attached payload and it will fly on the Shuttle as part of the IEH (International EUV/FUV Hitchhiker) mission. NASA has accepted 5 flights separated by 1 year starting early in 1995. In the present work we briefly describe its mechanical and optical configuration as well as its operational modes. We also show *UVSTAR* sensitivity calculations for full resolution (~1A) and *IUE*-like resolution (~6A) compared with the energy distribution of some known EUV/FUV astronomical sources.

[1] Department of Astronomy, University of Trieste Italy.
[2] Center for Advanced Research in Space Optics Trieste, Italy.
[3] Lunar and Planetary Lab., University of Arizona U.S.A.
[4] International School for Advanced Studies Trieste Italy.
[5] Instituto Nacional de Astrofísica, Optica y Electrónica, México.

A SPECTROSCOPIC STUDY OF SUBLUMINOUS STARS IN NGC 2264

R. Mújica[1], C. Chavarría-K.[2], L. Corral[1], and L. Neri[3]

More than 13 subluminous stars associated with NGC 2264 were observed spectroscopically. We give spectral types and photometric properties of the stars to locate them in the H-R diagram and eluci

[1] Instituto Nacional de Astrofísica, Optica y Electrónica, México.
[2] Instituto de Astronomía, Universidad Nacional Autónoma de México.
[3] Instituto Tecnológico y de Estudios Superiores de Monterrey, Campus Cd. de México, México.