

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

The spectral index map between 450  $\mu$ m and 1100  $\mu$ m 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,  $\beta$  value, is  $\sim 1$  at  $\lambda \leq 800$   $\mu$ m due to a wavelength effect.

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#### A CRITICAL COMPILATION OF OSCILLATOR STRENGTHS FOR Fe II LINES

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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 ( $\log \lambda$ ), 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

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*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 Å and 850–1250 Å. 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 ( $\sim 1$ Å) and *IUE*-like resolution ( $\sim 6$ Å) compared with the energy distribution of some known EUV/FUV astronomical sources.

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#### A SPECTROSCOPIC STUDY OF SUBLUMINOUS STARS IN NGC 2264

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More than 13 subluminoous 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

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