Near-Infrared Spectra of Some Symbiotic Stars

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Abstract. Medium resolution near-infrared spectra of some symbiotic stars are presented.

1. Introduction

Most of the near-infrared spectra of symbiotic stars in the existing literature have been obtained at low to moderate resolutions, resulting in the blending of many interesting spectral features such as the CO bands. Although isolated cases of higher resolution studies exist, the sample of such stars is small. We have started a programme to obtain medium resolution ($R \sim 1000$) near-infrared (1–2.5 μm) spectra of symbiotic stars and related objects in order to obtain a homogeneous set of data for studying the red giant components in these systems. We present our first set of data here.

2. Observations

The observations were carried out using PRLNIC, a NICMOS3-based imager/ spectrometer, at the 1.2 m telescope of Mt Abu Infrared Observatory, India, during the observing run from 2001 December 30 to 2002 January 8.

Standard stars were observed to remove telluric absorption features. The H band spectra have been adequately corrected for the instrument response. Some residual corrections remain for the K band spectra. All the spectra are on a relative, but arbitrary, flux scale.

3. Infrared Spectra

H and K band spectra of symbiotic (BD Cam, EG And, and UV Aur) and suspected symbiotic (StHα 55, CD $-28°$ 3719, NQ Gem) stars are shown in Figures 1 and 2. The spectra show the typical CO absorption bands at 2.3 μm seen in cool giants. The ^{12}CO and ^{13}CO bands are seen to be clearly resolved.
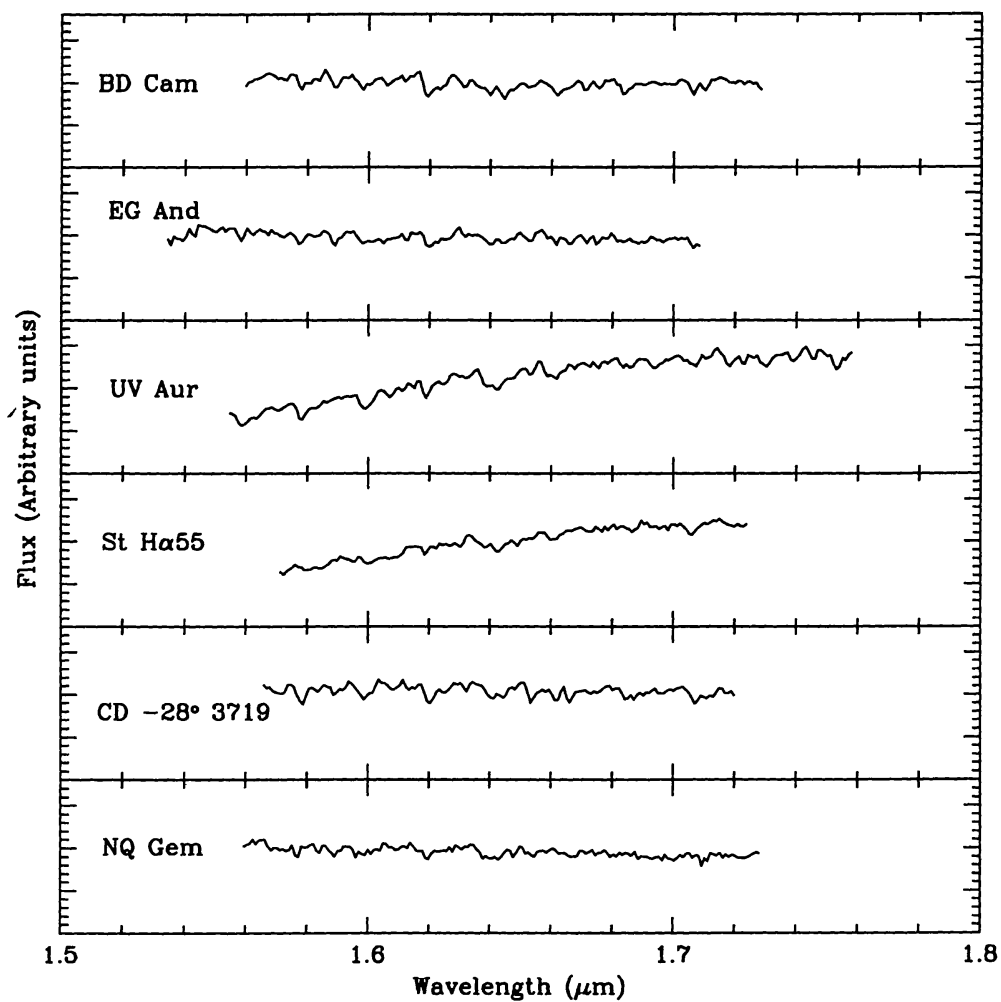
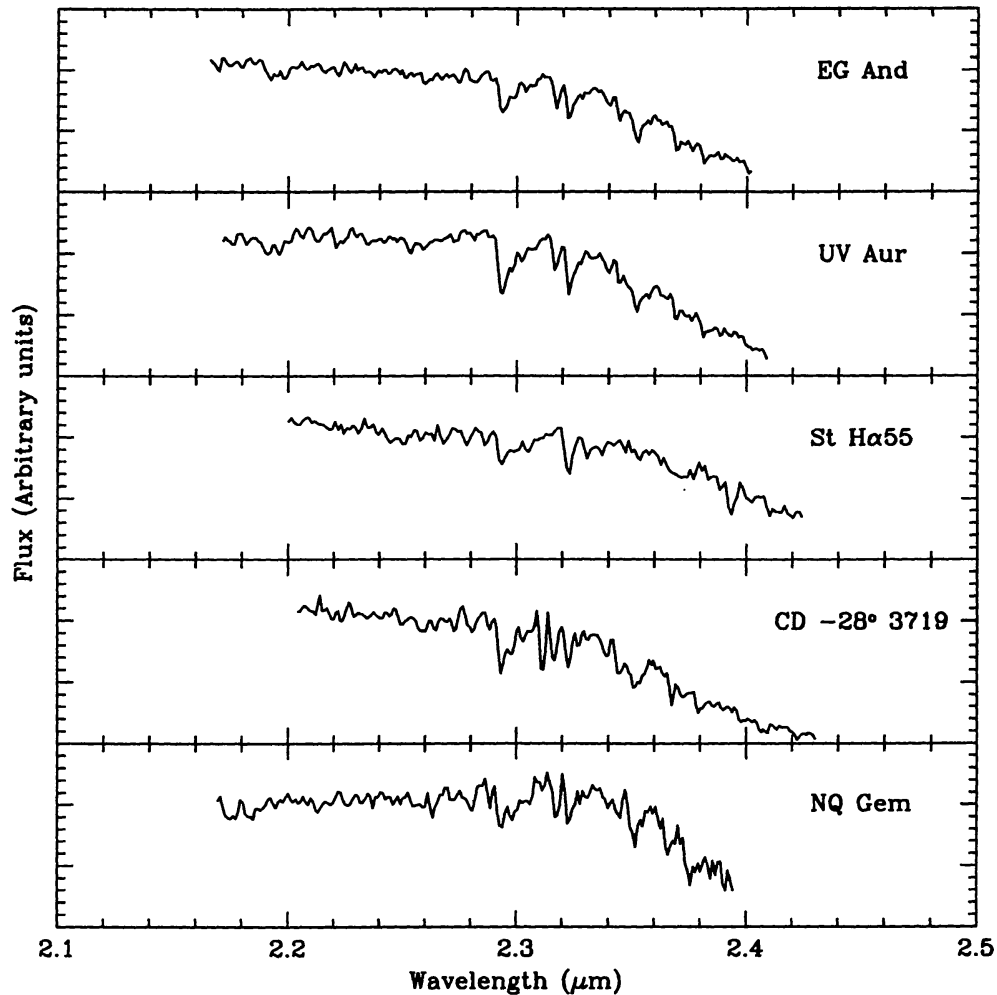Figure 1.   *H* band spectra of confirmed and suspected symbiotic stars.

Figure 2. K band spectra of confirmed and suspected symbiotic stars.

4. Concluding remarks

The observed spectra will be compared with synthetic spectra in order to derive parameters such as carbon abundances and isotopic ratios. They can also be useful in refining the model spectra. These aspects will be considered in a more detailed study later.