

# IUE OBSERVATIONS OF HERBIG-HARO OBJECTS 7, 11 & 29

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UV spectra of H-H 7 & 11 (L1450, NGC1333) and H-H 29 (L1551) have been observed with both the IUE long- and short- wavelength cameras. These data were obtained using long ( $\leq 12$  hours) exposure shifts over a period of three years. As expected, the S/N quality of the raw data is relatively poor and a special IUE extraction procedure has been developed within the MIDAS environment to deal with this problem. The data on H-H 7 & 11 confirm the very low excitation state of these objects, although the absence of Lyman band H<sub>2</sub> line emission is somewhat enigmatic. The continuum emission from HH 29 reveals considerable structure which is inconsistent with a pure 2-photon model for this source. The interpretation of these results are discussed in the light of conflicting optical data.

## H<sub>2</sub> 2.12 $\mu$ m SPECTROSCOPY AND IMAGING OF HH OBJECTS

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We have obtained high spectral resolution observations of a number of Herbig-Haro (HH) objects in the H<sub>2</sub>  $v=1-0$  S(1) line at 2.12 $\mu$ m. Objects observed included HH1/2, HH7-11, HH19, HH32A, HH40, and HH43, all associated with jet-like features or collimated optical outflows. Here we present velocity-resolved 2.12 $\mu$ m spectroscopy for HH40 (an HH-objects moving close to the line of sight) an for HH43B (an HH-object moving close to the plane of the sky). The full set of observations including interpretation is given in Zinnecker et al. (1989). We also present high spatial resolution H<sub>2</sub> 2.12 $\mu$ m images of HH40 and HH43. The 2.12 $\mu$ m H<sub>2</sub> line profiles were obtained with the UKIRT infrared Fabry-Perot system (effective resolution 30-35 km/s) using a diaphragm of diameter 11" for both HH40 and HH43. The H<sub>2</sub> images were obtained with the IR-array imager at the CTIO 1.5m telescope through a narrowband filter centred on the  $v=1-0$  S(1) line. The IR-camera used had 58x62 pixels and a resolution of 0.9"/pixel. The exposure time was 2x120sec and 5x60sec for HH40 and HH43, respectively. The images are sky subtracted, but not flat fielded, and should be viewed as preliminary test images.