

# Infrared Spectroscopy of the Dwarf Starburst Galaxy Henize 2-10

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We present 1.2-2.2  $\mu\text{m}$  spectra of the nucleus of Henize 2-10, taken at UKIRT with CGS 2. This galaxy displays strong line emission from interstellar  $\text{H}^+$  (1.282 & 2.166  $\mu\text{m}$ ) and  $[\text{Fe}^+]$  (1.256 & 1.644  $\mu\text{m}$ ), in common with other star-forming galaxy nuclei. However the 1-0 S(1) line of molecular hydrogen at 2.122  $\mu\text{m}$  is not detected - the upper limit of 0.15 ( $3\sigma$ ) for the value of the flux ratio  $I_{1-0\text{S}(1)}/I_{\text{Br}\gamma}$  is much lower than the typical values of 0.4-0.9 measured in a sample of 28 non-interacting starburst galaxies.

From the  $\text{Pa}\beta/\text{Br}\gamma$  line ratio we derive a total extinction of  $A_V \approx 4$  mag, greater than previous estimates based on the optical line spectrum (cf. Johansson 1987;  $A_V \approx 1$  mag).

The de-reddened  $\text{H}^+$  and  $[\text{Fe}^+]$  line fluxes are used to estimate the total ionising luminosity and the average supernova rate in the central 150 pc of He 2-10. By comparison of these estimates with existing IRAS and radio continuum data we are able to set limits on the range of stellar masses present in this unevolved ( $< 10^7$  yr old) starburst nucleus.

Possible reasons for the low  $\text{H}_2/\text{H}^+$  line ratios observed in young starburst systems (He 2-10, NGC 7714, IIZw40; eg. Moorwood & Oliva 1988) are briefly discussed.

Johansson (1987) *Astron. Astrophys.* 182, 179.

Moorwood & Oliva (1988) *Astron. Astrophys.* 203, 278.

He 2-10 CGS 2 spectrum

