HH 2 (Böhm & Solf 1992) have also been described. Solf & Böhm (1991) discussed the line profiles of the diffuse emission around HH 1 and 2 (possibly due to scattering on surrounding environmental dust). This effect was also studied by Riera et al. (2005), who presented Fabry-Perot observations of HH 1 and 2.

6. OTHER WAVELENGTH RANGES

6.1. *UV observations*

The far-UV emission of HH 1 was discovered with IUE by Ortolani & D'Odorico (1980). A series of papers described IUE observations of the emission line and continuous UV spectrum of HH 1 (Böhm, Böhm-Vitense, & Brugel 1981), HH 2 (Brugel, Seab, & Shull 1982) and the C-S star (Böhm & Böhm-Vitense 1982). The spatial extent of the UV emission was studied by Böhm-Vitense et al. (1982), Böhm et al. (1987), Lee et al. (1988) and Böhm, Noriega-Crespo, & Solf (1993). The UV variability of HH 1 was discussed by Brugel et al. (1985) and Böhm et al. (1993). The UV extinction was studied by Böhm-Vitense et al. (1982) and Böhm, Raga, & Binette (1991).

The most recent UV observations of HH 2 were obtained by Raymond, Blair, & Long (1997) with the Hopkins Ultraviolet Telescope. In this spectrum, lines of several ions (e.g., O III and IV) as well as H_2 lines were identified.

6.2. *IR observations*

Including the discovery paper of IR H_2 emission in HH 1 and 2 (Elias 1980), 25 papers on the IR spectra of these objects have been published. These papers include searches of potential sources for the HH 1/2 system (Cohen & Schwartz 1980; Cohen et al. 1984) and of the later accepted VLA 1 source (Strom et al. 1985; Rodríguez, Roth, & Tapia 1985; Harvey et al. 1986; Pravdo & Chester 1987; Tapia et al. 1987; Roth et al. 1989). Cernicharo et al. (2000) presented ISO observations of the VLA 1 region. Low and high resolution spectra of the H_2 emission of HH 1 and 2 were presented by Zinnecker et al. (1989), Kelly, Rieke, & Campbell (1994), Schwartz et al. (1995), Gredel (1996), Davis, Smith, & Eislöffel (2000), Eislöffel, Smith, & Davis (2000), Nisini et al. (2005) and García López et al. (2008), the last three papers presenting long-slit spectra. Molinari & Noriega-Crespo (2002), Lefloch et al. (2003) and Lefloch et al. (2005) obtained ISO spectra of HH 1 and 2.

H_2 2.12 μm images of HH 1 and 2 have been presented by Zealey et al. (1992), Noriega-Crespo & Garnavich (1994), Davis, Eislöffel, & Ray (1994), Noriega-Crespo et al. (1997, discovery of H_2 proper motions in HH objects), Davis et al. (2000) and Stanke, McCaughrean, & Zinnecker (2000).

6.3. *Radio observations*

The first paper (out of a total of 19 papers) on radio observations of HH 1/2 (Snell & Edwards 1982) reported the non-detection of a CO outfow. HH 1 and 2 as well as the central VLA 1 source (the source that powers the HH 1/2 system) were first detected in radio continuum by Pravdo et al. (1985) at 20, 6 and 2 cm (HH 1 was actually not detected at the shorter wavelength). Morgan, Snell, & Strom (1990) reported a detection at 6 cm and a non-detection at 20 cm of the radio continuum of HH 1/2 and VLA 1. Rodríguez et al. (1990) detected the radio continuum proper motions of HH 1 and 2, and Rodríguez et al. (2000) obtained proper motions of knots within the elongated VLA 1 source.

Different molecules were detected in dense structures centered on VLA 1 and elongated perpendicularly to the outflow axis (Torrelles et al. 1985; Martín-Pintado & Cernicharo 1987; Marcaide et al. 1988; Davis et al. 1990; Torrelles et al. 1993, 1994; Choi & Lee 1998). Molecular emission associated with clumps which are perturbed (possibly only radiatively) by HH 1 or HH 2 have been studied by Davis et al. (1990), Torrelles et al. (1992, 1993), Choi & Zhou (1997), Girart et al. (2002, 2005) and Dent, Furuya, & Davis (2003).

6.4. *X-ray observations*

Pravdo & Angelini (1993) report ROSAT observations of a region containing HH 1/2, and specifically mention the non-detection of HH 1 (giving an upper limit for its flux). A paper on the X-ray emission of HH 2 (Pravdo et al. 2001) reports the discovery of the X-ray emission of HH objects. The spectrum observed with Chandra implies the presence of gas at $\sim 10^6$ K.

7. MODELS OF HH 1/2

The idea of HH objects being the result of shock waves was first suggested by Schwartz (1975), who noticed similarities between the spectra of supernovae remnants and the spectra of HH 1 and Burnham's nebula. Böhm (1978) proposed that HH 1 might be the result of a spherically expanding shock wave, and Schwartz (1978) proposed that HH 1 and 2 might be bow shocks formed by a fast wind interacting with almost stationary, dense clumps. Cantó & Rodríguez (1980) proposed that the HH 1 shock waves were associated with the convergence region