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roscopic view of the HH 24-26 region

ronomy and Astrophysics 359:148-158

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References (48) Figures (10)

Figures

rt the results of an investigation, performed with the ISO spectrometers d SWS), on the star forming region associated with the Herbig-Haro HH 24-25 and 26. Low-resolution LWS spectra (45-197 μm) were d towards the HH24MMS, HH25MMS and HH26IR sources as well as the outflow. In addition, SWS scans of the pure H2 rotational lines towards IS were acquired. Emission from [O I] 63 μm and [C II] 158 μm appears ead while molecular transitions of carbon monoxide and water vapour ected only towards HH25MMS and the blue lobe of HH26IR. From the of the observed emission we deduce that the gas towards HH24MMS 5MMS is excited at densities ~ 106cm-3 and temperatures ranging) to 1400 K in HH24MMS and from 150 to 550 K in HH25MMS. Along the e of the HH26IR outflow, a more diffuse (nH2 ~ 104 cm-3) and warm (T K) gas is found. Both the molecular (CO, H2O and H2) and atomic ([O I]) in the three sources can be interpreted as due to shock excitation, xture of both C- and J-type shocks are required to reproduce most of rved characteristics of the spectra. The derived water abundances (3 0-6) are lower than expected in warm shock excited gas, a result which been found in other similar regions investigated with ISO. The total derived from the gas component traced by the FIR lines is always of the der or larger than the cooling due to the molecular hydrogen as traced 2 2.12 μm line; although this latter could be underestimated if the dust n is not negligible, however it is evident that a significant fraction of gy released in the shocks is re-radiated away by the far infrared lines. he [C II]158μm line intensities are rather constant at all of the d positions, excluding the presence of strong photo-dissociation regions o the nearby IR sources.

f the ions. Gaussian fits to the H2... Observed emission line... Physical parameters... a and b. Rotational...

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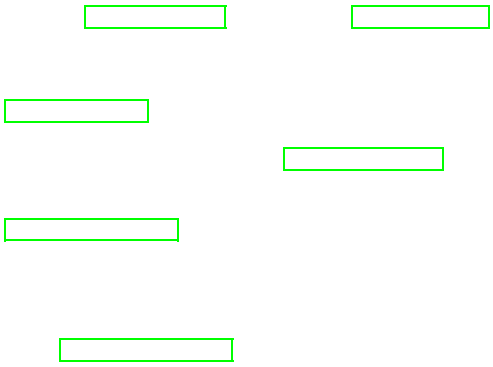

4) References (48)

... Water abundance in molecular outflows. Again, the first estimates of the water abundance in molecular outflows were obtained with ISO and gave abundances varying from ~ 10 −5 to ~ 10 −4 ([271]; [316]; [31]). Water in outflows was also the target of the Submillimeter Wave Astronomy Satellite (SWAS) and Odin satellite, which were tuned on the H 2 O ground-state transition at 557 GHz ([157]; [47]; [32]). ...

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Far-Infrared Investigation of Class 0 Sources: Line Cooling

December 2008 · The Astrophysical Journal

December 2000 · The Astrophysical Journal

Teresa Giannini · Brunella Nisini · and Dario Lorenzetti

We have investigated with the Long Wavelength Spectrometer (LWS) of the Infrared Space Observatory (ISO) the far-infrared spectra (43-197 μm) of a sample of 17 class 0 sources and their associated outflows. In addition to [O I] 63 μm, the pure rotational lines of abundant molecules such as CO, H2O, and OH are frequently observed in these sources, at variance with more evolved young stellar ... [Show full abstract]

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An investigation of the B335 region through far infrared spectroscopy with ISO

January 1999 · Astronomy and Astrophysics

B. Nisini · M. Benedettini · T. Giannini · [...] · H. A. Smith

We present far infrared spectra of the B335 dark cloud region, obtained with the Long Wavelength Spectrometer (LWS) on-board the ISO satellite. Deep spectra were obtained towards the far infrared outflow exciting source, located in the B335 core, and on the three associated Herbig Haro (HH) objects HH119 A, B and C. In addition, a region of about 9' in RA and 4' in Dec. was mapped which covers ... [Show full abstract]

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Shock excited far-infrared molecular emission around T Tau

October 1999 · Astronomy and Astrophysics

T. Giannini · B. Nisini · Glenn J. White · [...] · L. Spinoglio

The first complete far-infrared spectrum of T Tau has been obtained with the LWS spectrometer on-board the Infrared Space Observatory (ISO), which detected strong emission from high-J (J=14-25) CO, para- and ortho-H2O and OH transitions over the wavelength range from 40 to 190 μm. In addition the [OI]63μm, [OI]145μm and [CII]158μm atomic lines were also detected. Most of the observed molecular ... [Show full abstract]

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ISO observations of the HH 24-26 regions

March 1999

M. Benedettini · T. Giannini · B. Nisini · [...] · Glenn J. White

We report the results of an investigation, performed with the Long Wavelength Spectrometer (LWS) and the Short Wavelength Spectrometer (SWS) on-board the ISO satellite, on the star forming region associated with the Herbig-Haro objects HH24-25 and 26. In particular, we obtained low-resolution LWS spectra towards the two Class 0 sources HH24MMS and HH25MMS as well as towards the Class I source ... [Show full abstract]

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An infrared study of the L1551 star formation region

December 2000 · Astronomy and Astrophysics

Glenn J. White · R. Liseau · E. Tommasi · [...] · A B Men'schikov

Spectroscopic observations using the Infrared Space Observatory are reported towards the two well known infrared sources and young stellar objects L1551 IRS 5 and L1551 NE, and at a number of locations in the molecular outflow. The ISO spectrum contains several weak gas-phase lines of O I, C II, ?Fe II? and ?Si II?, along with solid state absorption lines of CO, COensuremath ... [Show full abstract]

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Far infrared mapping of the gas cooling along the L1448 outflow

July 2000 · Astronomy and Astrophysics

B. Nisini · M. Benedettini · T. Giannini · [...] · J. S. Richer

The molecular outflows associated with the two Class 0 sources L1448-mm and L1448-IRS3 have been mapped with the spectrometers on board the ISO satellite allowing to study in detail the physical and chemical structure of the shocked gas. The far infrared cooling is mainly due to the emission from pure rotational lines of CO, H2O and H2 excited at temperatures between 500 and 1200 K. [O I]63μm ... [Show full abstract]

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