SPECTROSCOPIC DATA FOR HERSCHEL, ALMA AND OTHER SUB-MILLIMETRE AND FAR-INFRARED INSTRUMENTS

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Unambiguous identification of observed molecular spectral lines is critical for the scientific success of near-future FIR/Submm astrophysical instruments. With the launch of the Herschel Space Observatory (HSO) scheduled for 2008 and first science observations with ALMA starting around 2009, it is therefore urgent to evaluate how existing spectroscopic data compares to astrophysical needs and to propose and carry out new measurements and analysis when needed. A rapid overview of the two major web-based public databases (JPL and CDMS) that cover the spectral region considered is available from our website[a] and concerns species already detected in space, including isotopomers, vibrationally excited states etc. The information is given in the form of an easily consultable table with entries such as the maximum and minimum (laboratory) measured frequencies. A single recommended entry is given when the same species is found in both databases and we are beginning to include references to information not yet included in these databases.

We have also started to contribute to the improvement in available spectroscopic data, which is needed especially in the new spectral region for observations above 1 THz. New laboratory measurements have recently been taken at JPL of the following species: HCO^+, DCO^+, $H^{13}CO^+$, $D^{13}CO^+$ [b]; CH_3D; C_3H_8[c]; $H^{13}COOH$, DCOOH, HCOOD; CH_2NH. Some examples of ongoing analysis will be given.

[a] http://www.cesr.fr/~walters/web_cassis/spectral_data.htm

[b] V. Lattanzi, A. Walters, B. J. Drouin, J. C. Pearson; submitted to *Astrophys. J.*

[c] B. J. Drouin, J. C. Pearson, A. Walters, V. Lattanzi, *J. Mol. Spec.* 240, 227, (2006).