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Recent progress in acetylene laboratory measurements for astrophysical applications

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The acetylene molecule is important for atmospheric, planetary, and astrophysical applications. This organic molecule, known as a precursor of amino acids, shows numerous vibration-rotation bands in the IR. A summary of the various works performed between 0 to 10000 cm^{-1} will be presented, and the recent work performed at SOLEIL synchrotron with the AILES beamline will be emphasized. This work concerns the spectral region around 100 cm^{-1} and 500 cm^{-1} of interest for astrophysical applications. Absolute line intensities of the intense $\nu_5 - \nu_4$ band have been measured around 100 cm^{-1} (D. Jacquemart, L. Gomez, N. Lacome, J.-Y. Mandin, O. Pirali and P. Roy. JQSRT 2010;111,1223-1233.), and those of the weaker hot bands around 100 cm^{-1} and 500 cm^{-1} are in progress.