

THE ASTROPHYSICAL WEEDS: ROTATIONAL TRANSITIONS IN EXCITED VIBRATIONAL STATES

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The number of unidentified lines in the millimeter and submillimeter wave surveys of the interstellar medium has grown rapidly. The major contributions are due to rotational transitions in excited vibrational states of a relatively few molecules that are called the astrophysical weeds^{a, b}. The necessary data to deal with spectral lines from astrophysical weeds species can be obtained from detailed laboratory rotational measurements in the microwave and millimeter wave region. A general procedure is being used at Valladolid combining different time and/or frequency domain spectroscopic tools of varying importance for providing the precise set of spectroscopic constants that could be used to search for this species in the ISM. This is illustrated in the present contribution through its application to several significant examples.

^aFortman, S. M., Medvedev, I. R., Neese, C.F., & De Lucia, F.C. 2010, ApJ, 725, 1682

^bRotational Spectra in 29 Vibrationally Excited States of Interstellar Aminoacetonitrile, L. Kolesníková, E. R. Alonso, S. Mata, and J. L. Alonso, The Astrophysical Journal Supplement Series 2017, (in press).