

## THE MICROWAVE SPECTROSCOPY OF AMINOACETONITRILE IN THE VIBRATIONAL EXCITED STATES 2

CHIHO FUJITA, HARUKA HIGURASHI, HIROYUKI OZEKI, *Department of Environmental Science, Toho University, Funabashi, Japan*; KAORI KOBAYASHI, *Department of Physics, University of Toyama, Toyama, Japan*.

Aminoacetonitrile ( $\text{NH}_2\text{CH}_2\text{CN}$ ) is a potential precursor of the simplest amino acid, glycine in the interstellar space and was detected toward SgrB2(N).<sup>a</sup> We have extended measurements up to 1.3 THz so that the strongest transitions that may be found in the terahertz region should be covered.<sup>b</sup> Aminoacetonitrile has a few low-lying vibrational excited states<sup>c</sup> and indeed the pure rotational transitions in these vibrational excited states were found.<sup>d</sup> The pure rotational transitions in six vibrational excited states in the 80-180 GHz range have been assigned and centrifugal distortion constants up to the sextic terms were determined. Based on spectral intensities and the vibrational information from Bak et al., they were assigned to the 3 low-lying fundamentals, 1 overtone and 2 combination bands. In the submillimeter wavelength region, perturbations were recognized and some of the lines were off by more than a few MHz. At this moment, these perturbed transitions are not included in our analysis.

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<sup>a</sup>A. Belloche, K. M. Menten, C. Comito, H. S. P. Müller, P. Schilke, J. Ott, S. Thorwirth, and C. Hieret, 2008, *Astronom. & Astrophys.* **482**, 179 (2008).

<sup>b</sup>Y. Motoki, Y. Tsunoda, H. Ozeki, and K. Kobayashi, *Astrophys. J. Suppl. Ser.* **209**, 23 (2013).

<sup>c</sup>B. Bak, E. L. Hansen, F. M. Nicolaisen, and O. F. Nielsen, *Can. J. Phys.* **53**, 2183 (1975).

<sup>d</sup>C. Fujita, H. Ozeki, and K. Kobayashi, 70th International Symposium on Molecular Spectroscopy (2015), MH14.