FTMW SPECTROSCOPY OF CH_2NC ($\tilde{X}^2B_1$) $\sim$ A POSSIBLE CANDIDATE OF INTERSTELLAR MOLECULE

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Cyanohydrocarbons are molecules of great importance in cold dark clouds such as TMC-1. Due to such interests, CH_2CN has been studied by experimental and theoretical means, and these extensive investigations lead unambiguous identification of the molecule in interstellar matter[a]. It turns out that an isomer CH_2NC was rarely studied experimentally, probably because of unstableness of this species compared with CH_2CN.

We recently recorded Fourier transform microwave (FTMW) spectra of CH_2NC at the University of Tokyo. About 0.3$\sim$1 percent of CH_3NC, synthesized by an ordinary way, was diluted in the Ar or Ne buffer gas at the pressure of $\sim$1 atm. The mixed gas was injected into the Fabry-Pérot cavity via a pulsed nozzle, whose opening was synchronized with high voltage dc pulse to discharge to generate the aimed species. N=1_{10}-0_{00} ($\sim$ 22.2 GHz), 2_{02}-1_{01}, 2_{12}-1_{11}, and 2_{11}-1_{10} ($\sim$ 44.4 GHz) were recorded with well resolved fine and hyperfine structure. The molecular structure as well as a possibility of detection of this molecule will be discussed.

[a] W. M. IRVINE *et al*. *Astrophys. J.*, **334**, L107 (1988).