MICROWAVE SPECTRA OF METHYL FORMATE ISOTOPOMER ($HCOO^{13}CH_3$)

HARUKA TACHI, KAORI KOBAYASHI, SHOZO TSUNEKAWA, , *Department of Physics, University of Toyama, 3190 Gofuku, Toyama, 930-8555 Japan*; MEGUMI KUWANO, MASAHARU FUJITAKE, NOBUKIMI OHASHI, *Kanazawa University, Japan*; NAOTO HAYASHI, and HIROYUKI HIGUCHI, *Department of Chemistry, University of Toyama, 3190 Gofuku, Toyama, 930-8555 Japan*.

Methyl formate is a well-known interstellar molecule found in the star-forming region. One possible methyl formate production reaction is the reaction of methanol with other chemical species. Since the methyl rotor is originated from the methanol and $^{13}CH_3OH$ has already been identified in space, it is quite likely to detect $HCOO^{13}CH_3$ in the near future. The microwave spectra of the methyl formate isotopomer ($HCOO^{13}CH_3$) could provide the rest frequencies as well as some indication about the production mechanism. We observed the microwave spectra of $HCOO^{13}CH_3$ by means of the FT-microwave spectrometer and the conventional source modulation spectrometer. The lines in the ground state were assigned and analyzed based on Hougen's tunneling matrix formulation.