NEAR-INFRARED OVERTONE SPECTROSCOPY OF TRITIATED WATER

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The tritiated water molecules (here HTO and T_2O) are important isotopomers of water. The spectroscopic information is essential from the viewpoint of the basic science. However, the high-resolution spectroscopic studies of tritiated water were limited probably due to the radioactive nature of tritium. The microwave studies of these species were carried out and the molecular constants of the ground state were determined. [a,b] The fundamental ν_1 band and the ν_3 band of HTO were reported. [c,d] For T_2O, the ν_3 band was studied. [e]
At 1.3 micron region, overtone and combination bands are expected. In this study we prepared tritiated water of high concentration which is necessary for the near-infrared measurement and carried out frequency modulated near-infrared spectroscopy. Many lines which are not listed in HITRAN were observed. We will report the current status of the analysis.

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