Q01a Precise measurement of line intensities $S\mu^2$ of CH_2DOH by using emission-type millimeter and submillimeter-wave spectrometer SUMIRE

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Methanol (CH_3OH) is an abundant interstellar species and is known to play an important role in formation of various interstellar complex-organic molecules (COMs) as a mother species. As a monodeuterated methanol, CH_2DOH is one of the most abundant isotopologues of CH_3OH and it is often used to study deuteration of molecules. However, its theoretical line intensities listed in astronomical databases have significant errors disturbing determination of its accurate column density and temperature. To overcome this issue, the laboratory measurements of line intensities $S\mu^2$ of CH_2DOH are necessary. In this study, it has been determined in the millimeter-wave region from 216 GHz to 264 GHz by talking advantage of an emission-type millimeter and submillimeter-wave spectrometer SUMIRE. In the *b*-type transitions, significant systematic errors were found between theoretical and experimental $S\mu^2$ for three torsional sub-state, e_0, e_1 and o_1. On the other hand, in the *a*-type transition, determined $S\mu^2$ agree well with reported values in the database within experimental error of SUMIRE as 10% except for some transitions showing an effect from avoided crossing. The present study will enable us to trace deuterium fractionation of COMs along the star formation.