COLOR CENTER LASER SPECTROSCOPY OF THE ν_1 BAND OF DCN-HCN GENERATED IN A PULSED SUPERSONIC JET EXPANSION

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Color center laser spectroscopy has been applied to direct absorption observation of the ν_1 band of DCN-HCN generated in a pulsed supersonic jet expansion. A new wavenumber scanning system has been used for the observation, where a laser end mirror and an internal etalon have been locked to a fringe of an external scanning etalon and the wavenumber was swept by scanning the external etalon. The 15 lines were assigned to the ν_1 band of DCN-HCN. In order to obtain precise molecular constants, we have measured direct absorption millimeter wave spectra of deuterated species of HCN dimer in the ground state. A simultaneous analysis of the infrared and millimeter wave spectra yielded the band origin and rotational constants of DCN-HCN as ν_1=3241.60809(93) cm^{-1}, B_1=1666.66(47) MHz, and B_0=1662.4350(35) MHz.