DIODE LASER SPECTROSCOPY OF SD_3^+

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Three of the four fundamental bands of the SH_3^+ ion were observed by Amano *et al.*[a] Much less is known about the fully-deuterated isomer, SD_3^+. An *ab initio* calculation by Botschwina *et al.*[b] predicted the ν_1 and ν_3 band origins at 1832 and 1839 cm^{-1} respectively, but there have been no previous experimental observations of this isomer.

In this talk we will discuss our observation of the absorption spectrum of SD_3^+ in the region between 1750-1870 cm^{-1}. The ion was generated in a methanol-cooled hollow cathode discharge of D_2, containing a trace quantity of OCS, and a series of spectra were recorded by means of a diode laser system. The ν_1 and ν_3 fundamentals of this ion perturb each other via a Coriolis interaction and a full analysis requires us to simultaneously fit both bands. The analysis is currently in progress, and our results will be discussed at this meeting.

[a] T. Nakanaga and T. Amano, Chem. Phys. Lett. 134 (2) , 195 (1987). T. Amano, K. Kawaguchi and E. Hirota, J. Mol. Spectrosc. 126, 177 (1987). T. Nakanaga and T. Amano, J. Mol. Spectrosc. 133, 201 (1989)

[b] P. Botschwina, A. Zilch, H.-J. Werner, P. Rosmus and E.-A. Reinsch, J. Chem.Phys. 85 (9), 5107 (1986)