ROTATIONAL SPECTROSCOPY OF *n*-PROPANOL: *Aa* AND *Ag* CONFORMERS

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Propanol occurs in two isomers, as a primary alcohol *normal*-propanol ($CH_3CH_2CH_2OH$) and as a secondary alcohol *iso*-propanol ($CH_3CH(OH)CH_3$). Moreover, *normal*-Propanol occurs in five different conformers: *Ga*, *Gg*, *Gg'*, *Aa*, and *Ag*. Rotational spectra of all three conformers of the *G* family are well described [1], hence, an astronomical search of their rotational fingerprints is possible, in contrast to *Aa* and *Ag*.

Rotational spectra of *normal*-propanol were recorded in the frequency region of 18 to 500 GHz. Double-modulation double-resonance (DM-DR) measurements were performed additionally, in particular to unambiguously assign weak transitions of the *Aa* and to verify assignments of the *Ag* conformer. An extended quantum mechanical model for *Aa* was derived, based on Ref. [2]. Furthermore, the existence of two tunneling states, Ag^+ and Ag^-, has been proven by unambiguously assigned transitions, but a quantum mechanical model description for *Ag* could not be given yet. The astronomical detection of all five conformers is now possible, but the quantum mechanical description of the *A* family should still be improved in the future.

[1] Kisiel, Z., Dorosh, O., Maeda, A., et al., *Phys. Chem. Chem. Phys.* **12** (2010) 8329.
[2] Dreizier, H. & Scappini, F. Z., *Naturforsch. A* **36** (1981), 1187.