^{1}H and ^{19}F NMR Studies on Molecular Motions in Two Solid Phases of t-Butylammonium Tetrafluoroborate

Hiroyuki Ishida

Department of Chemistry, Faculty of Science, Okayama University, Okayama 700-8530, Japan

Z. Naturforsch. **53 a,** 796–800 (1998); received May 30, 1998

Differential thermal analysis (DTA), differential scanning calorimetry (DSC), and the temperature dependence of the spin-lattice relaxation time (T_1) and the second moment (M_2) of ^{1}H and ^{19}F NMR were studied in $(CH_3)_3CNH_3BF_4$ and $(CH_3)_3CND_3BF_4$. DTA and DSC revealed a solid-solid phase transition at 219 K for $(CH_3)_3CNH_3BF_4$ and at 221 K for $(CH_3)_3CND_3BF_4$. The motions of cations and anions in the two solid phases were studied by T_1 and M_2 experiments. The motional modes of the ions and their motional parameters were determined.

Key words: Molecular motion; Phase transition; Nuclear magnetic resonance.

Reprint requests to Prof. Dr. H. Ishida; Fax: +81 86 251 8497.