

Application of GdCl₃ Thermometry at Temperatures Near the Liquid-Gas Critical Point of ³He. INSEOB HAHN, and M. BARMATZ, Jet Propulsion Laboratory, California Institute of Technology. --- WC. are currently developing a paramagnetic salt (GdCl₃) thermometer for high resolution heat capacity and isothermal compressibility measurements near the liquid-gas critical point of ³He. This GdCl₃ thermometer was known to have a temperature resolution of better than 1×10^{-10} K at temperatures near 2 K [M.J. Adrians *et al.*, *Physica B* 169, 455 (1991)]. We employed a traditional d.c. magnetic SQUID measurement technique to measure the magnetic susceptibility of the GdCl₃ salt. The thermometer is calibrated against a commercial Germanium resistance thermometer. The ultimate resolution and stability of the thermometer near the critical point (T_c = 3.3 K) of ³He will be discussed. [Work supported by NASA].