

Abstract Submitted  
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**NMR probe of spin gap characteristics in  $\text{Cu}_2\text{Sc}_2\text{Ge}_4\text{O}_{13}$**  C.N. KUO, T.H. SU, C.S. LUE, Department of Physics, National Cheng Kung University, Tainan 70101, Taiwan, G.J. REDHAMMER, Department of Material Science, Division of Mineralogy, University of Salzburg, Hellbrunnerstr. 34 — We report the results of a  $^{45}\text{Sc}$  nuclear magnetic resonance (NMR) study on the quasi-one-dimensional compound  $\text{Cu}_2\text{Sc}_2\text{Ge}_4\text{O}_{13}$  at temperatures between 4 K and 300 K. This material has been a subject of current interest due to indications of spin gap behavior. The temperature-dependent NMR shift exhibits a character of low-dimensional magnetism with a negative broad maximum at  $T_{max} \sim 170$  K. Below  $T_{max}$ , the NMR shifts and spin lattice relaxation rates clearly show activated responses, confirming the existence of spin gap in  $\text{Cu}_2\text{Sc}_2\text{Ge}_4\text{O}_{13}$ . The observed data can be well fit to the spin dimer model, yielding a spin gap value of about 275 K. A detailed analysis indicates that the nearly isolated dimer picture is proper for the understanding of gap feature in this material.

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