

Abstract Submitted
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Dielectric Relaxation of $\text{CaCu}_3\text{Ti}_4\text{O}_{12}$ synthesized from a pyrolysis method¹ JIANJUN LIU, W. N. MEI, Department of Physics, University of Nebraska at Omaha, Omaha, Nebraska 68182-0266, R. W. SMITH, Department of Chemistry, University of Nebraska at Omaha, Omaha, Nebraska 68182-0109, J. R. HARDY, Department of Physics and Center for Electro-Optics, University of Nebraska, Lincoln, Nebraska 68588-0111 — Giant dielectric constant material $\text{CaCu}_3\text{Ti}_4\text{O}_{12}$ has been synthesized by using a pyrolysis method. A stable solution was made by dissolving calcium nitrate, copper nitrate, and titanium isopropoxide in 2-methoxyethanol; the solution was then heated at 500 and 700 °C for 2 hours to obtain a pure phase of $\text{CaCu}_3\text{Ti}_4\text{O}_{12}$. The frequency and temperature dependences of dielectric permittivity were examined in the ranges of $10^{-1}\sim 10^6$ Hz and $-150\sim 200$ °C. We found that the dielectric properties of the sample were the same as those made from solid state reaction. Specifically, there is a Debye-like relaxation at low temperature and its giant dielectric constant about 11000 is independent of the temperature and frequency over a wide range.

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