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Observation of anomalous dielectric properties in low-dimensional spin 1/2 α -Cu₂V₂O₇ magnetic system YU-JEN CHEN, KAKARLA-DEVI CHANDRASEKHAR, KO-JUNG FAN, Department of Physics, National Sun Yat-Sen University, JIUNN-YUAN LIN, Institute of Physics, National Chiao Tung University, JENN-MIN LEE, JIN-MING CHEN, National Synchrotron Radiation Research Center, HUNG-DUEN YANG, Department of Physics, National Sun Yat-Sen University — Recently, low-dimensional magnetic systems have received much attention from both theoretical and experimental physics point of view due to their fascinating physical properties. In general, Cu₂V₂O₇ can stabilize at least two sibling polymorphs named as α and β phases. In α phase, Cu₂V₂O₇ crystallized in orthorhombic with *Fdd2* space groups. The complex magnetic exchange interaction between the Cu-O-Cu ion within the intra and interchain creates the Dzyaloshinskii-Moriya interaction that leads to weak ferromagnetism below the magnetic transition temperature $T_N = 34$ K. In this study, we present the results of multiple dielectric anomalies observed in the low dimensional spin 1/2 α -Cu₂V₂O₇ magnetic system. The observed dielectric signatures can be ascribed to the complex magnetic interaction α -Cu₂V₂O₇ system. Further, the chemical doping effect on the magnetic and multiferroic properties of α -Cu₂V₂O₇ is underway.

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