Abstract Submitted
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Ion conductivity relaxation and specific heat close to the first-order phase transition of $\gamma-\mathbf{RbAg_4I_5}$ RUBEN A. VARGAS, Universidad del Valle, HERNANDO CORREA, Universidad del Quindo, DIEGO PEÑA-LARA, Universidad del Valle — We report on simultaneous measurements of specific heat at normal pressure and ac conductivity in single-crystalline γ-$RbAg_4I_5$ close to and below its γ-to-β first order phase transition at 121 K. We found an accurate proportionality between the specific heat, $\boldsymbol{c}_P$, and the temperature derivative of the product $\boldsymbol{nE}_\sigma$, where β $\boldsymbol{=1-\ n}$, is the Kohlrausch stretching exponent for the conductivity relaxation and $\boldsymbol{E}_\sigma \boldsymbol{= d(ln\sigma)/d(T^{-1})}$ is the dc conductivity activation energy, which is non-Arrhenius. Thus, our results show that the dc conductivity activation energy $\boldsymbol{E}_\sigma\boldsymbol{(T)}$ includes, besides the true microscopic energy "barrier" for independent ionic motion, $\boldsymbol{(1\text{-}n)\ E}_\sigma$ (according the coupling model), an additional contribution from the enthalpy of the mobile Ag-ions defects, $\boldsymbol{h}$.

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