Ion conductivity relaxation and specific heat close to the first-order phase transition of $\gamma$-$\text{RbAg}_4\text{I}_5$ 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 $\gamma$-RbAg$_4$I$_5$ close to and below its $\gamma$-to-$\beta$ first order phase transition at 121 K. We found an accurate proportionality between the specific heat, $c_P$, and the temperature derivative of the product $nE_\sigma$, where $\beta = 1 - n$, is the Kohlrausch stretching exponent for the conductivity relaxation and $E_\sigma = d(ln\sigma)/d(T^{-1})$ is the dc conductivity activation energy, which is non-Arrhenius. Thus, our results show that the dc conductivity activation energy $E_\sigma(T)$ includes, besides the true microscopic energy “barrier” for independent ionic motion, $(1-n)E_\sigma$ (according the coupling model), an additional contribution from the enthalpy of the mobile Ag-ions defects, $h$. 

Ruben A. Vargas
Universidad del Valle

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