Abstract Submitted
for the MAR10 Meeting of
The American Physical Society

Ion conductivity relaxation and specific heat close to the first-order phase transition of $\gamma-\mathbf{RbAg_4I_5}$[1] RUBEN A. VARGAS, Universidad del Valle, HERNANDO CORREA, Universidad del Quindio, DIEGO PEÑA LARA, Universidad del Valle, PHASE TRANSITION GROUP TEAM — 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, $\boldsymbol{(1-n)\ E}_\sigma$ (according the coupling model), an additional contribution from the enthalpy of the mobile Ag-ions defects, $\boldsymbol{h}$.

[1]This project was supported by the national Science Foundation of Colombia under Grant no. 1106-06-17649.

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Date submitted: 28 Oct 2009 Electronic form version 1.4