Abstract Submitted
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Heat of fusion of primary alcohol confined in Nano pores.[1] HARRISONN GRIFFIN, SAMUEL AMANUE, Dept. of Phys. Astro., Union College — Melting behavior of physically confined 1-decanol in nano porous silica was probed using a Differential Scanning Calorimeter (DSC). In agreement with the Gibbs-Thompson prediction, we observe that the melting temperature of the confined 1-decanol scales inversely with the physical size of the pores. Contrary to the assumption used in developing the Gibbs-Thompson equation, however, the apparent heat of fusion decreases as the the pore size decreases. Previously, several models have been proposed where the interfacial layer/s of molecules do not participate in the phase transition and thereby would not contribute to the heat of fusion. While these could reconcile the seeming contradiction, annealing the nano confined materials enables some of the interfacial layers to be incorporated into an existing crystal. This leads to an increase in the apparent heat of fusion and a systematic relationship exists between the annealing temperature and the increase in the apparent heat of fusion.

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