

Abstract Submitted
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Phase Transitions of 2-Decanol in Nano Pores¹ SAMUEL AMANUEL, JASON TURNER, CALEB NOVINS, ALEXANDER CLAIN, Dept. of Phys Astro., Union College — We studied the melting of 2-decanol confined in nano pores, 10-100 nm, using a power-compensated Differential Scanning Calorimeter (DSC). The melting temperature of the nano confined 2-decanol decreases as pore size decreases and a linear relationship is observed between the melting temperature and the inverse of the pore size. This is in agreement with the Gibbs-Thomson prediction. In addition, the apparent heat of fusion of the 2-decanol confined in the nano pores appears to decrease as the size of the pores decreases. However, the apparent heat of fusion of the nano confined 2-decanol may not necessarily be its true heat of fusion. Annealing, for instance, increases the apparent heat of fusion by as much as 26%. A correction or alternate procedure should be employed to extract the true heat of fusion from DSC measurements, especially when the physical size of the sample is in nano scale or the sample possesses a large surface area to volume ratio.

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Samuel Amanuel
Dept. of Phys
Astro., Union College

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