

Abstract Submitted
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Evaluating the Role of Interfacial Molecules in Cp Measurements using Differential Scanning Calorimeter¹ WILL LINTHICUM, SAMUEL AMANUEL, Dept. of Phys. & Astro., Union College — Differential Scanning Calorimeter (DSC) has been used to evaluate the specific heat capacity of bulk ethylene glycol and physically confined ethylene glycol in porous silica with well-defined porosity. By controlling the pore sizes, we were also able to control the surface to volume ratio of ethylene glycol that comes in contact with the silica walls. Previously, we have demonstrated that about 2.14 nm layers of interfacial cyclohexane molecules do not participate in phase transition. In this case, how the physical size and the interfacial molecules affect the overall specific heat capacity of the silica ethylene glycol system is evaluated in the temperature range 303K - 413K. These empirical results are compared with computed specific heat capacities of composite materials, where the specific heat capacities of the composite systems are evaluated from the weighed average of the individual specific heat capacities. We are seeking means of reconciling the experimental observations with the computed specific heat capacities and looking for correction terms where the role of interface can be accounted.

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Samuel Amanuel
Dept. of Phys. & Astro., Union College

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