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First Order Phase Transition of Primary and Secondary Decanol Inside Nanoporous Silica SAMUEL AMANUEL, Dept. of Physics and Astronomy, Union College — The roles of OH side groups in influencing the first order phase transition of structural isomers of Decanol are determined from calorimetric measurements. Our calorimetric measurements revealed that the melting temperature of 1-decanol and 2-decanol to be 6.3 $^\circ$C and -2.5 $^\circ$C, respectively. While there is 1-2 $^\circ$C hysteresis between the melting and freezing temperatures of 1-decanol, there is about 20 $^\circ$C hysteresis between the melting and freezing temperature of 2-decanol. These structural isomers clearly behave differently in bulk, namely difference in their transition temperature, hysteresis in the transition temperatures, and viscosity. How physical confinement influences and affects their melting and freezing behavior will be presented in this presentation. Comparative measurement on these primary and secondary can possibly elucidate whether the presence of plausible non-freezing layer argument used to explain the reduction in the apparent ΔH with respect to physical size is generally valid for different structural isomers.

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