

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Effects of Physical Confinement on the Hysteresis between Melting and Freezing Temperatures of Decanol¹ SAMUEL AMANUEL, JARGAL-SAIKHAN DULMAA, AMER KHRAISAT, Department of Physics and Astronomy, Union College, Schenectady, NY 12308 — There is substantial evidence that physical confinement alters melting and freezing temperatures of materials. These have been qualitatively explained using free energy considerations. However, it is not clear how physical confinement influences melting and freezing when the bulk material itself exhibits substantial supercooling. Bulk 2-decanol, for instance, exhibits substantial hysteresis between its melting (approximately -23°C) and freezing (-3°C) temperatures. Evidently, both its melting and freezing temperatures are influenced by physical size. However, the hysteresis between the freezing and melting temperatures seems less sensitive to physical size. This may be the result of differences in homogeneous versus heterogeneous nucleation in physically confined 2-decanol.

¹This work has been supported by Faculty Research Fund, Union College.

Samuel Amanuel
Dept of Physics and Astronomy, Union College, Schenectady, NY 12308

Date submitted: 23 Nov 2010

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