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Influence of Thermal History in Crystallization of Physically Confined 2-Decanol SAMUEL AMANUEL, ALEXANDREA SAFIQ, HILLARY BAUER, JARGALSAIKHAN DULMAA, AMER KHRAISAT, Department of Physics and Astronomy, Union College, Schenectady, NY 12308 — Bulk 2-decanol exhibits substantial hysteresis between its melting (-3^{o}C) and freezing (-23^{o}C) temperatures. When it is physically confined, the melting and freezing temperature are lowered and still exhibit hysteresis. Any presence of partially melted crystals, however, can trigger crystallization at higher temperatures upon subsequent cooling, suggesting that the hysteresis is thermal history dependant. The history, however, can be erased at temperatures higher than melting point. The lowest temperature at which the thermal history can be erased is physical size dependent. For example, 2-decanol physically confined in 100 nm has to be heated to a temperature between -10°C and -5°C to erase its history while 2-decanol confined in 300 nm has to be heated to a temperature between -2°C and 2°C.

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