

Abstract Submitted
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Homogeneous bulk, surface, and edge nucleation in crystalline nanodroplets JESSICA L. CARVALHO, KARI DALNOKI-VERESS, Department of Physics & Astronomy and the Brockhouse Institute for Materials Research, McMaster University, Hamilton, ON, Canada, L8S 4M1 — We present a study on the homogeneous nucleation of dewetted poly(ethylene oxide) droplets on a substrate that is itself crystallisable. While the chemical properties of the substrate prepared in either the amorphous or crystalline state are identical, the surface landscape varies widely. We observe a large difference in the substrate's nucleating ability depending on how it is prepared. Furthermore, the scaling dependence of the nucleation rate on the size of the droplets depends on the substrate surface properties. The birth of the crystalline state can be directed to originate predominantly within the bulk, at the substrate surface or at the droplet's edge depending on how we tune the substrate. J.L. Carvalho and K. Dalnoki-Veress, Phys. Rev. Lett in press, 2010.

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