Nucleation of C$_{60}$ on ultrathin SiO$_2$ BRAD CONRAD, Appalachian State University, MICHELLE GROCE, WILLIAM CULLEN, ALBERTO PIMPINELLI, ELLEN WILLIAMS, TED EINSTEIN, University of Maryland College Park — We utilize scanning tunneling microscopy to characterize the nucleation, growth, and morphology of C$_{60}$ on ultrathin SiO$_2$ grown at room temperature. C$_{60}$ thin films are deposited in situ by physical vapor deposition with thicknesses varying from <0.05 to ~1 ML. Island size and capture zone distributions are examined for a varied flux rate and substrate deposition temperature. The C$_{60}$ critical nucleus size is observed to change between monomers and dimers non-monotonically from 300 K to 500 K. Results will be discussed in terms of recent capture zone studies and analysis methods. Relation to device fabrication will be discussed. 
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