

Abstract Submitted  
for the MAR12 Meeting of  
The American Physical Society

**Nucleation of C<sub>60</sub> on ultrathin SiO<sub>2</sub>**<sup>1</sup> 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<sub>60</sub> on ultrathin SiO<sub>2</sub> grown at room temperature. C<sub>60</sub> 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<sub>60</sub> 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. doi:10.1016/j.susc.2011.08.020

<sup>1</sup>We gratefully acknowledge support and SEF support from the NSF MRSEC under grant DMR 05-20471, support from the University of Maryland CNAM, and support from Appalachian State University.

Brad Conrad  
Appalachian State University

Date submitted: 07 Dec 2011

Electronic form version 1.4