

Abstract Submitted  
for the MAR12 Meeting of  
The American Physical Society

**Freezing of Water next to Solid Surfaces Probed Using Sum-Frequency Generation Spectroscopy**<sup>1</sup> EMMANUEL ANIM-DANSO, ANISH KURIAN, LIEHUI GE, University of Akron, AZAR ALIZADEH, General Electric, ALI DHINOJWALA, University of Akron — The control of ice formation next to solid surfaces is important in many technological applications such as de-icing for aircrafts and generation of power using wind turbines. We have studied the water-ice transition next to sapphire surface to understand the freezing transition and nucleation of ice. The infrared-visible sum frequency generation spectroscopy is sensitive to the structure and orientation of water molecules next to the solid interface and provides direct information on transition kinetics at the interface. The differences in the nucleation kinetics will be discussed for water in contact with hydrophilic and hydrophobic surfaces.

<sup>1</sup>Funded by National Science Foundation

Ali Dhinojwala  
University of Akron

Date submitted: 10 Nov 2011

Electronic form version 1.4