

Abstract Submitted  
for the DFD09 Meeting of  
The American Physical Society

**A model for wetting and evaporation of a post-blink precorneal tear film**<sup>1</sup> DANIEL ANDERSON, KATLYN WINTER, George Mason University, RICHARD BRAUN, University of Delaware — We examine a one-dimensional hydrodynamic model derived using lubrication theory for the evolution of a post-blink precorneal tear film that includes evaporation of the aqueous layer and a wetting corneal surface. The evaporation model includes the effects of conjoining pressure and predicts the existence of an equilibrium adsorbed fluid layer that serves as a model for a wetting corneal surface/mucin layer. The dewetting rates predicted by the model are in qualitative agreement with experimental measurements.

<sup>1</sup>NSF, DMS-0639300, DMS-0709095, DMS-0616483

Daniel Anderson  
George Mason University

Date submitted: 07 Aug 2009

Electronic form version 1.4