

Abstract Submitted
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Dynamics and Spreading of pentanol and other alcohols for MEMS applications¹ BRENDAN MILLER, DAVID HOOK, JACQUELINE KRIM, North Carolina State University — Microelectromechanical Systems (MEMS) have the potential to revolutionize widespread technologies, but tribological issues are currently preventing commercialization of some devices. Self-assembled monolayers (SAMs), while highly effective against release related stiction, are ineffective as MEMS lubricants [1]. Vapor phase lubrication has been proposed as a solution to the issue of tribological failure in MEMS with alcohol vapors attracting much interest. In an effort to understand the basic mechanisms of lubrication we have performed a quartz crystal microbalance (QCM) study of the uptake, sliding friction, and spreading rates of adsorbed alcohols on silicon and SAM treated substrates. [1] D. A. Hook, S. J. Timpe, M. T. Dugger, and J. Krim. *Tribological degradation of fluorocarbon coated silicon microdevice surfaces in normal and sliding contact*. J. Applied Physics **104** (2008).

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Brendan Miller
North Carolina State University

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