

Abstract Submitted
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Study of SAM surface morphology, integrity and film quality on various Au surfaces¹ JOHN MURPHY, INDRAJITH SENEVIRATHNE, Lock Haven University — SAM (Self Assembled Monolayer) surfaces have many possible applications from polymer based electronics to sensor engineering. Common substrate architecture for such systems happens to be Au(111) on mica. Au on layered mica lacks mechanical resilience towards engineering applications. Solutions of 1-dodecanethiol (hydrophobic -R), dissolved in 200 proof Ethanol with 5mM concentration were prepared. These solutions were used in developing SAMs on purchased, clean flat Au(111) on mica (standard), Au sputter deposited on mica, Hydrogen flame annealed Au layers on glass, and Hydrogen flame annealed Au layers on mica. Resulting SAM surfaces were investigated with regular and custom built hydrophilic and hydrophobic AFM (Atomic Force Microcopy) probes via contact, and non contact AFM with topography and phase imaging. Surface integrity, roughness, corrugation and morphology on SAM surfaces were estimated. Preliminary data indicated total RMS surface roughness at $\sim 2.8\text{nm}$ for SAMs on typical gold surfaces on mica purchased (standard) while varying RMS surface roughness estimates on subsequent surfaces with flame annealed samples showing similar RMS surface roughness.

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