Abstract Submitted
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SAM surface domains of 6-Amino-1-hexanethiol hydrochloride and 1-dodecanethiol mixtures on Au(111) investigated via hydrophilic and hydrophobic probes[1] ALBERT FOSTER, Lock Haven University, RESHANI SENEVIRATHNE, Don's Food Products Inc, INDRAJITH SENEVIRATHNE, Lock Haven University — Amine terminated SAM (Self Assembled Monolayer) surfaces have shown to be bioactive. Hence similar systems can be exploited towards bioengineering applications. However a deeper understanding of the surface domain architecture of SAMs with multi component mixtures of such thiols is need. Varying concentration mixed solutions of 6-Amino-1-hexanethiol hydrochloride (hydrophilic –NH2 end) and 1-dodecanethiol (hydrophobic –R), dissolved in 200 proof Ethanol with total 5mM concentration were prepared. These solutions were used in developing SAMs on clean flat Au(111) on mica. Resulting SAMs surfaces were investigated with regular and custom built hydrophilic and hydrophobic AFM (Atomic Force Microcopy) probes via contact, non contact and lateral force mode AFM with topography and phase imaging. Domains of distinct thiols were identified as selective self assembly on step edges and terraces. Surface roughness, corrugation and morphology at each domain were estimated. Total RMS surface roughness was estimated at $\sim$ 3.75nm for SAMs from unmixed (100%) 6-Amino-1-hexanethiol hydrochloride with increasing RMS surface roughness estimates for SAMs from mixtures with increasing concentrations of dodecanethiol.

[1]LHU Nanotechnology Program, PASSHE FPDC (LOU # 2010-LHU-03).

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