

Abstract Submitted
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SAM Surface Domains Of 6-Amino-1-Hexanethiol Hydrochloride And 1-Dodecanethiol Mixtures on Au(111) Investigated Via AFM and STM Spectroscopy ALBERT FOSTER, JOHN MURPHY, INDRAJITH SENEVIRATHNE, Lock Haven University of Pennsylvania, RESHANI SENEVIRATHNE, Don's Food Products — Bioengineering that utilizes Self Assembled Monolayers (SAMs) has been shown to have large potential in biosensing applications. Since these SAMs can be tailored to have different functional groups attached to them, such as amine groups, it is possible to fabricate highly selective surfaces for biological species. In order to understand these surfaces better, a closer characterization of the morphology, and surface structure is needed. Differing concentrations of the solutions 6-Amino-1-hexanethiol hydrochloride (hydrophilic – NH₂) and 1-dodecanethiol (hydrophobic – R) were prepared, all with a total concentration of 5 mM. The mixture was dissolved in 200 proof Ethanol and hydrogen annealed Au(111) samples on mica were let self assembled in hydrocarbon free, clean glassware for a period of 24 hours to facilitate uniform and systematic assembly. These various SAM systems were then characterized via STM (Scanning Tunneling Microscopy) and AFM (Atomic Force Microscopy). The surface morphology and structure were studied via AFM tapping and phase imaging. Surface charge density variations were studied with STM. These results were then correlated against each other to understand the SAM surface system. Cumulative results of these investigations will be discussed.

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