

Abstract Submitted
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STM study of short chain hydrophobic thiol SAMs on Au capped HOPG under ambient conditions¹ ALEXIS BOWERS, MACKENZIE MAURER, INDRAJITH SENEVIRATHNE, Lock Haven Univ — Self Assembled Monolayer(SAM) surfaces provide common architecture in many device applications including sensor engineering. The conductivity characteristics and surface molecular structure or orientation of these SAMs are important physiochemical properties which are dependent on the surface arrangement. SAMs used in this study are short chain –R terminated (hydrophobic) 1-Butanethiol on thermally annealed Au thin film capped on Highly Oriented Pyrolytic Graphite(HOPG). Scanning Tunneling Microscopy (STM) and contact angle measurements are used to assess the SAM layered surfaces. Solutions of 1-Butanethiol, dissolved in 200 proof Ethanol with 5mM concentration were prepared for the self-assembly process. These solutions were used in developing SAMs on purchased, freshly cleaved HOPG substrates. Au thin films were sputter deposited on HOPG and subsequently annealed. Initial data shows low Au deposition yields rougher inconsistent surfaces. Ambient conditions under which data was obtained impose fresh surfaces for each investigation. Tentative surface structure, consistency and thiol molecular arrangement of the SAM layer on Au capped HOPG will be discussed.

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Alexis Bowers
Lock Haven Univ

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