Eectroactive Monolayers on n-Type Silicons

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The modification of silicon surfaces is essential for the electrochemical molecular-based devices [1-3] (such as microelectronics, memory devices), photovoltaics [4], sensors [5-7], and biologically active surfaces [8,9]. In this study, covalent immobilization of well-defined acetylene-terminated organic monolayers were prepared on hydrogen terminated n-type Si from single step hydrosilylation procedure from 1,8-nonadiyne, then azido ferrocene was clicked on the distal end of alkyne by click reaction. The surface was characterized by XPS and was found no evidence of SiO_x contaminants for SAMs. In addition, after clicking azido ferrocene on the distal end of alkyne, scanning electrochemical microscopy (SECM) in feedback mode was applied to study electronic communication between the ferrocene (Fc) centre and the underlying semiconductor surface.

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