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Direct Assembly of Periplasmic Binding Proteins on Gold Surfaces CRISTIAN STAII, Department of Chemistry, Princeton University, DAVID WOOD, Department of Chemical Engineering and Department of Molecular Biology, Princeton University, GIACINTO SCOLES, Department of Chemistry, Princeton University and Scuola Internazionale Superiore di Studi Avanzati (SISSA), Trieste, Italy — We present a new and very promising approach to protein based biosensor design, which uses a technique called nanografting to immobilize proteins at addressable locations on Au surfaces. In nanografting, an Atomic Force Microscope (AFM) tip is used to disrupt a preexisting monolayer of alkanethiol molecules on a gold surface, thereby facilitating exchange with alternative thiol-linked proteins from the surrounding solution. This technique opens the possibility of preparing highly ordered, nanometer size protein arrays that can be patterned at different addressable locations on the surface. We also use the AFM to monitor the ligand-induced conformational changes of periplasmic binding proteins nanografted on Au substrates.

Cristian Staii
Department of Chemistry, Princeton University

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