McGill Chemical Society

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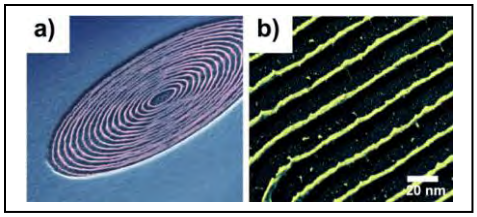
Self-Assembly on Semiconductor Surfaces

Tuesday Feb. 3, 2009 1:00pm

Otto Maass room 10

Metal nanostructures continue to be the focus of intense research because of their fascinating properties that can be distinctly different form their bulk counterparts, and thus show great promise for a range of applications. The challenge lies in fabricating large areas of high density metallic nanostructures, with feature sizes below 100 nm, in an economically feasible manner. While photolithography will justifiably remain a core technology with respect to upcoming, sub-65 nm nodes on the semiconductor industry association roadmap, cost considerations for mass manufacturing will be one potential constraint. As a result, there is interest in the development of complementary patterning strategies that involve large scale self-assembly, for use as a soft organic template for metal nanostructure development. In this proposal, we will outline our approaches towards the use of self-assembled block copolymer nanostructures on technologically relevant semiconductor materials, to produce sub 50-nm features, using approaches compatible with existing silicon-based fabrication.



(a) "Nano target practice: - rings of platinum, 36 nm apart, prepared via the use of a self-assembled block copolymer template on silicon. (b) Close up of platinum lines on a silicon surface.

Everyone is welcome