

# UNH Materials Science Seminar

11:10-12:00, Thursday, September 25, 2008

DeMeritt Hall 238

University of New Hampshire

## Self-assembly of Molecular Arrays on Metallic Interfaces

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Bottom-up synthesis methods suggest a path towards the growth of advanced and designable nano-materials. Central to the success of these methods is the ability to understand and control the film-molecule and the intermolecular interactions on an atomic scale. One compelling method to initiate the growth of nano-structured materials is to employ the natural tendency of layered thin films of dissimilar materials to form ordered arrays of misfit dislocation networks. On such systems, the self-assembly is driven by strain relaxation in the metal film. Another avenue is to use the intermolecular interactions to form ordered molecular arrays, where designed molecules yield predictable structures. This talk will focus on few systems highlighting such self-assembly processes. I will compare the different self-assembly mechanisms of molecules on strained metallic films of Ag on Ru(0001).

Both growth processes are generally applicable to many functionalized C60 molecules, thus opening avenues towards complex and designable self-assembled structures based on a lock-and-key type approach.

**Dr. Bogdan Diaconescu** currently is a Research Scientist at the Center for High-rate Nanomanufacturing and Department of Physics at the University of New Hampshire. His work explores molecular and stress relaxation driven self-assembly processes yielding to novel nano-materials and the electronic properties of reduced dimensional systems. He is actively involved in instrumentation development required for such investigations. He received a Ph.D. in Physics from the University of New Hampshire and a M.S. in Nuclear Engineering and B.S. in Physics from Bucharest University in Romania. He was the recipient of the 2007 AVS Morton M. Traum surface science division student award and the 2008 Research/Scholarship/Creativity Award from the University of New Hampshire.

Host: Professor Karsten Pohl x4197