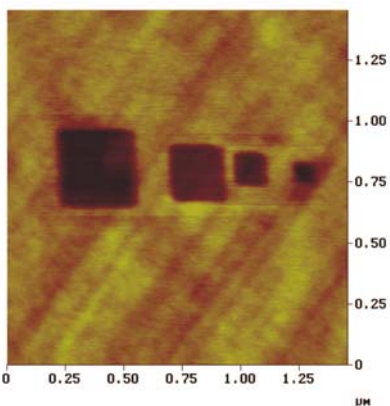


Nanoscale investigations of electronic properties of organic thin films (*Prof. Cindy Berrie*). The desire for increased device speed and functionality has driven the feature sizes in electronic devices ever smaller. However, as the fundamental limits of current technologies are being approached, there is great interest in organic-based molecular electronics. There are a number of open questions in this area that need to be addressed before the technology will be practical, *e.g.*, issues related to substituent effects, charge transport mechanisms, and molecular domain size effects. An REU student working on this project will prepare and characterize model nanostructured self-assembled monolayer films



to address some of the above questions. Specifically, he/she will create films with nanoscale domains of various conjugated organic molecules and obtain the current-vs.-voltage characteristics of these systems as a function of the domain size using conductive AFM measurements. In addition to Prof. Berrie's work on the electronic properties of benzenoid conjugated organic systems, a collaboration with the Barbyin group involves studying electronic characteristics of nonbenzenoid isocyanoazulenes, which are of interest for the possibility of asymmetric charge transport. Students working on this project will learn scanning probe microscopy and surface and materials characterization techniques including FTIR, ellipsometry, and contact angle analysis. Since her

arrival at KU in 2001, Prof. Berrie has published five papers with ten undergraduate co-authors, including two articles with three REU co-authors.

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