Molecular Monolayers and Films: Molecular Beaker Epitaxy *versus* Molecular Beam Epitaxy

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Monolayers and thin films of molecular materials are deposited using two conspicuously different methods: (i) self-assembly in which monolayer or mutilayer is deposited on a substrate by simply dipping it into a surfactant solution kept in a beaker i.e. molecular beaker epitaxy (MBkE); and (ii) molecular beam epitaxy (MBE) in which deposition are carried out using vapor phase under ultra-high vacuum conditions. These two techniques are very different in terms of the simplicity, cost and operation, that is, MBkE on the lowest end and MBE being on the highest end. Nevertheless both methods yield high quality molecular monolayers and films. In this talk, we I will present some interesting results on monolayer/films produced using these two techniques. In particular, I will show the high charge carrier mobility in the MBE grown cobalt-phthalocyanine films; and electronic functionality in MBkE grown monolayers and free-standing conducting polymer films grown by bi-phasic interface polymerization