Fractal growth of ultrathin films of p-sexiphenyl on alkali halide substrates

EDWARD KINTZEL, KENNETH HERWIG, Spallation Neutron Source, Oak Ridge National Laboratory, PETER PFEIFER, Department of Physics, University of Missouri at Columbia — An initial study of the fractal growth of ultrathin films of $p$-sexiphenyl molecules as incipient infinite percolation clusters has been carried out using fluorescence microscopy. Individual films of nearly equal mass thickness were grown onto KBr(001), KCl(001), and NaCl(001) substrates by vapor deposition. The structure of percolation clusters can be well described by fractal concepts. In particular, we can determine the fractal dimension $d_f$. Analysis of the fluorescence images provides evidence that as the lattice constant of the alkali halide substrate decreases, the fractal dimension of the adsorbed film increases.