Nano and micromechanics of solid surface suspension

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Abstract
Under certain conditions, a solid surface is suspended on a dense array of nanostructures while at other conditions, the surface is imprinted by the nanostructure array. In this paper, recent research results are presented for the nanometer-scale solid surface deformation associated with solid surface suspension and imprinting caused by high grafting density contacts and molecular interactions at the interface. Carbon nanotube arrays of high grafting density, greater than hundred million arrays per square millimeter, are used to study nanoscale contact suspension of plastically deforming solids and imprintability of high density nanoscale contacts.