

Lateral Buckling of Asymmetric Janus Nanowalls

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Asymmetric Janus nanostructures have received much attention due to their unique physical properties. Bio-inspired Janus structure is useful for various applications such as artificial adhesives, microfluidics, and optical devices because of their directional optical, mechanical, and wetting properties. We have been used an oblique metal deposition technique to induce a mechanical deformation on high aspect ratio nanostructures. In this presentation, we will talk about the lateral buckling of high aspect ratio Janus nanowalls. Polymeric nanowalls were prepared with a replica molding method and metal films were then deposited on one side of the polymer nanowalls in vacuum condition. During the metal deposition, the Janus nanowalls themselves buckle laterally; this buckling is induced by the compressive residual stress of the metal film deposited as well as geometric confining constraints.