

Impact dynamics of water droplets on chemically modified WO_x nanowire arrays

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The effects of surface energy on the wetting transition for impinging water droplets were experimentally investigated on the chemically modified WO_x nanowire surfaces. We could modify the surface energy of the nanostructures through chemisorption of alkyltrichlorosilanes with various carbon chain lengths and by the UV-enhanced decomposition of self assembled monolayer (SAM) molecules chemically adsorbed on the array. Three surface wetting states could be identified through the balance between antiwetting and wetting pressures. This approach establishes simple strategy for the design criteria for water-repellent surface to impinging droplets.