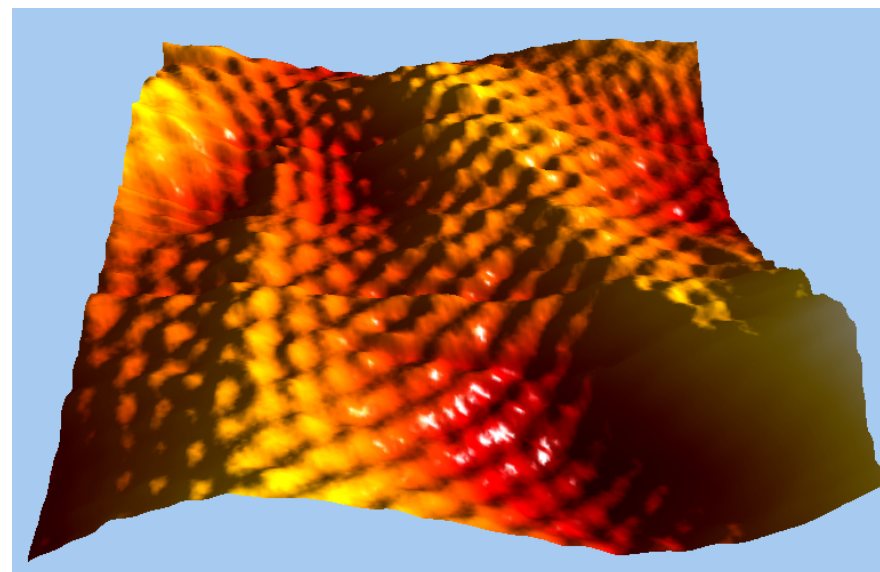


University of Maryland NSF-MRSEC SEF Highlight: New Electronic Material Fits In Where It's Placed

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University of Maryland researchers have used the MRSEC's SEM-STM facility to show what causes the corrugation of sheets of graphene, thought to be crucial in defining the novel electronic properties of this exciting new electronic material. By comparing the corrugations of the graphene with the silicon dioxide surface supporting it, they proved that the graphene is flexible enough and sticky enough to conform to the rough SiO_2 . This means it will be possible to tune graphene's electronic properties by creating special substrate patterns to support the graphene sheets.



Graphene sheet conforms to rough silicon dioxide surface below
Top right: Scanning Tunneling Microscopy image of a sheet of graphene supported on a silicon dioxide surface. The regular, closely-spaced bumps reveal the atomic structure of the sheet. The longer-range “wrinkles” are structure corrugations that theorists think are important in graphene's electronic properties.
Right: Illustration of graphene bending to fit all but the sharpest corners on the substrate. The adhesion is strong enough to allow bending radii down to 0.5 nm.

