



Manufacturing 2D Materials at Low Temperatures and High Spatial Selectivity

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Abstract

The multitude of 2D materials in regard to composition, crystal structure and layer thickness leads to a variety of material properties covering all of the components necessary to address voltage, interconnect, energy, and dimensional scaling issues in a variety of applications. For 2D materials to be technologically competitive, it is imperative to develop manufacturable materials deposition protocols at low temperatures and at any location on demand without wafer transfer processing. In this talk, a low temperature spin coating process will be discussed to form transition metal dichalcogenides at low temperatures using a modified spin coating technique from low decomposition temperature molecules. Furthermore, to achieve spatial selectivity of grown 2D materials, this talk will also describe a novel process to spatially measure and modulate the surface energy of van der Waals surfaces at growth temperatures to achieve selective area growth of 2D materials into a variety of form factors.