

Visualization of Metal Electrodes on TMD Materials:

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Abstract

Transition metal dichalcogenide (TMD) is an exciting class of 2D materials with many promising electronic and optoelectronic properties. However, there is a kind of contact with a very high potential energy, which might cause energy loss between TMDs material and metal, that is, Schottky contact. The energy loss between different materials creates a series problem in manufacturing electrodes. Therefore, solving such problems is a high priority issue. In this work, we present a scanning tunneling microscopy (STM) study, visualizing the growth behavior and morphology of Ni grown on HOPG. As increasing the Ni coverage, the morphology of Ni layers on HOPG changes significantly. Our study provides important information in growth mechanism of metal contacts on TMD materials.