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**Scanning Tunneling Microscopy and Scanning Tunneling Spectroscopy Studies of Chromium Clusters Deposited on Moiré Patterns on HOPG**<sup>1</sup> XIN ZHANG, HONG LUO, State Univ of NY - Buffalo — Moiré patterns (MP) formed by twisted graphene layers, present great potential for use as periodic substrates to facilitate the growth of nanostructures to obtain useful electronic and/or magnetic properties. The growth of Chromium (Cr) deposited on MPs on the surface of highly ordered pyrolytic graphite (HOPG) and its effects on the electronic structure in the MPs were studied by scanning tunneling microscopy/spectroscopy (STM/STS). Without Cr, two van Hove singularities (VHSs) were observed by STS on the MPs. With low coverage of Cr, atoms deposited on graphite Moiré form small clusters randomly distributed over the surface. With the presence of Cr clusters, the energy difference between the two VHS peaks enlarged while its linear dependence on the twisting angle remains. Compare to the situation before deposition, the graphite's Fermi velocity increased while the interlayer interaction decreased. The electronic structure modification caused by a Cr cluster as a function of distance from the cluster was studied with extremely low coverage. The effective distance can reach about 10 lattice cells of the Moiré pattern.

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