

Abstract Submitted
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An STM Study of the Interaction of hexabenzocorone on a Ru(0001) Surface KWANG TAEG RIM, Columbia University, Department of Chemistry and Columbia Center for Integrated Science and Engineering, DAEJIN EOM, LI LIU, SHENGXIONG XIAO, MICHAEL STEIGERWALD¹, MARK HYBERTSEN, Columbia University, Department of Applied Physics and Applied Mathematics and Columbia Center for Integrated Science and Engineering, COLIN NUCKOLLS, GEORGE FLYNN — The interaction of hexabenzocorone (hbc) with Ruthenium surface has been investigated using Scanning Tunneling Microscopy in ultrahigh vacuum. The images obtained at 77K and 4.5K, after hbc molecules were vacuum deposited at 325°C onto a pristine Ru(0001) surface, exhibit surface bound molecules with off-centered bonding sites. After annealing the hbc-Ru complex at 600°C for 15min, hbc molecules appear to be dehydrogenated to form the bowl-shaped C₄₈. The nature of the interaction and the dehydrogenation of the hbc on Ru(0001) surface will be discussed with DFT calculation, the supplemental IR absorption, and Temperature Programmed Desorption studies. The possibility of growing carbon nanotubes on C₄₈ end-cap upon dosing with C₂H₂ will also be discussed.

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