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STM/S study of polycyclic aromatic hydrocarbons on Co (0001) DAEJIN EOM, MICHAEL LEFENFELD, KWANG TAEG RIM, LI LIU, SHENGXIONG XIAO, COLIN NUCKOLLS, TONY HEINZ, GEORGE FLYNN, NANOSCALE SCIENCE AND ENGINEERING CENTER, COLUMBIA UNIVERSITY COLLABORATION — The fascinating physical properties of carbon nanotubes (CNT) have attracted attention for more than a decade. Both practical and scientific uses of CNTs have, however, been hindered by the incomplete synthetic control of nanotube structure (diameter and chiral angle). Understanding of growth at the microscopic level may advance our ability to control nanotube chirality. We have consequently explored the interaction of a cobalt substrate, a common catalyst for the growth of CNTs, with polycyclic aromatic hydrocarbon molecules, such as hexabenzocoronene (HBC). Using ultra-high vacuum, low-temperature scanning tunneling microscopy (STM), we have examined the changes in HBC topographic features and vibrational spectra that are induced by thermal annealing of the adsorbed molecules. The potential of hydrocarbon molecules like HBC as end caps for seeded growth of CNT of specific chirality will be discussed.

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