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Study of Ethylene film adsorbed on purified HiPco Single-walled carbon nanotubes[1] TOYO FURUHASHI, DINESH RAWAT, ALDO MIGONE, Department of Physics, Southern Illinois University at Carbondale, IL-62901, USA — We have measured adsorption isotherms for ethylene on purified HiPco SWNTs for coverages in the first and second layers. The isotherms were performed at 110, 120,130 and 140 K. Consistent with what is found for a number of other adsorbates, two distinct groups of binding energy sites were found for ethylene adsorbed on purified HiPco SWNTs. Additional features present in the isotherm data (namely, the presence of a possible substep) suggest the possibility of a phase transition occurring in the film when the film coverage is near the completion of the first layer. We have also determined the coverage dependence of isosteric heat of adsorption for ethylene using the results for isotherms obtained at the above-mentioned temperatures. The results will be compared to ethylene films on graphite and ethane on nanotubes.

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