

Abstract Submitted
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Comparative study of small alkane and alkene molecules adsorbed on purified HiPco Single-walled carbon nanotubes¹ DINESH RAWAT, TOYO FURUHASHI, ALDO MIGONE, Department of Physics, Southern Illinois University, Carbondale, IL-62901 — We have measured adsorption isotherms for ethylene on purified HiPco SWNTs at 11 different temperatures (between 110 and 220K). Our findings for ethylene will be compared to the results of ethane adsorption on the same substrate. Consistent with what we had found for ethane, two groups of distinct binding energy sites are observed for ethylene molecules adsorbed on the nanotube substrate. However, unlike in the case of ethane, no feature suggesting the existence of a phase transition was observed for the ethylene films. In addition, we have determined the coverage dependence of the isosteric heat of adsorption for ethylene on the same substrate. The values of the isosteric heats that we had previously determined for ethane are slightly higher than the ones obtained for ethylene, for the same fractional coverage. Our experimental isosteric heat results will also be compared with simulation results that indicate a similar trend.

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