Low Temperature Energy Phase Diagrams of Dimer Adsorption on Square Nanotubes with Repulsive First-Neighbor Interactions\textsuperscript{1} ALAIN PHARES, Villanova University, DAVID GRUMBINE, JR, St. Vincent College — We consider dimer adsorption on infinitely long square nanotube surfaces with increasing diameter which, when keeping the lattice constant fixed, corresponds to an increasing number $M$ of atomic sites in the normal section of the nanotube. We present the low temperature energy phase diagram of the system which is generated assuming repulsive first-neighbors and arbitrary second-neighbor interactions. The occupational characteristics of the system are the coverage, $\theta_0$, and the numbers of first- and second-neighbors per sites, $\theta$ and $\beta$. Crystallization patterns (phases) occur at values of the set \{ $\theta_0$, $\theta$, $\beta$ \} given explicitly as functions of $M$. The regions of the phase diagram in which the phases are found have been determined for any $M$, allowing an exact extrapolation to the infinite $M$ limit.

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