Abstract Submitted
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Adsorption of gases on graphene[1] SIDI MAIGA[2], TABIA MUHAMMAD[3], ALOZIE PAT-EKEJI[4], Howard University, BIBIANA VALDES, Prince George Community College, SILVINA GATICA[5], Howard University — We have studied the adsorption of several gases (Ar, Kr, Xe, NO) on graphene. We run Monte Carlo simulations to characterize the equilibrium properties of the monolayer film adsorbated on graphene. We were able to construct the phase diagrams of Ar and Kr showing commensurate and incommensurate 2D-solid phases. By analyzing the adsorption isotherms and structure functions of the films, we obtain the L-V, L-S and V-S coexistence lines. We also compared the Langmuir-model isotherms to the results of the Monte Carlo simulations, finding strong disagreement even at low coverage. A modified Langmuir model is proposed and tested.

[1]Supported by CIQM-NSF, PRDM-NSF and REU-NSF
[2]Department of Physics and Astronomy
[3]Department of Physics and Astronomy
[4]Department of Electrical Engineering
[5]Department of Physics and Astronomy

Silvina Gatica
Howard University

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