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Adsorption of Binary Gaseous Mixtures of Argon and Methane on Exfoliated Graphite BRICE RUSSELL, ALDO MIGONE, Department of Physics Southern Illinois University, Carbondale IL 62901, JARED BURDE, MARIA MERCEDES CALBI, Department of Physics and Astronomy, University of Denver, Denver CO 80208 — Exfoliated graphite was used as substrate in the adsorption of a 50% -50% mixture of argon and methane. Adsorption measurements were conducted at different temperatures and initial pressures both for the mixtures and for the pure gases. The time to reach equilibrium for a single dose for the 50%-50% mixture was compared to those for each individual species, at the same temperature. Mixture adsorption is a more complex process than single component adsorption and requires a much longer time to reach equilibrium. Information on the evolution of the composition of the mixture was obtained using a quadrupole mass spectrometer. Evidence for an initially higher rate of adsorption of the weaker binding species (argon) was found. However, at equilibrium there was more methane adsorbed on the graphite sample. These results are in line with theoretical predictions made by Burde and Calbi. This work was supported by the NSF through grant DMR-1006428.

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