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Low-Energy Electron Diffraction Study of Potassium Adsorbed on Graphite SHARON FINBERG, Dept. of Natural Sciences, Bentley College, Waltham, MA 02452, MELLITA CARAGIU, Dept. of Physics & Astronomy, Ohio Northern University, Ada, OH 45810, NICOLA FERRALIS, R. D. DIEHL, Dept. of Physics, Penn State University, University Park, PA 16802 — The (2x2) structure of potassium dosed on both single-crystal graphite (SCG) and highly-oriented pyrolitic graphite (HOPG) has been investigated by LEED for surface temperatures between 50 and 150K. Previous studies [1,2] observed intercalation of one or more potassium layers depending on the temperature of the substrate, and a recent photoemission study [3] suggested that a (2x2) underlayer forms before an overlayer forms. We found no evidence for an intercalated potassium layer for the same experimental conditions. A dynamical LEED study of the (2x2) structure indicates that the K atoms adsorb in hollow sites on top of the surface with a K-graphite average perpendicular spacing of 2.79±0.03Å, and a graphite interlayer spacing consistent to the 3.35Å bulk spacing. [1] P. Sjovall, Surf. Sci. 345, L39 (1996). [2] J. C. Barnard, K. M. Hock and R. E. Palmer, Surf. Sci. 287/288, 178 (1993). [3] M. Breitholtz, T. Kihlgren, S.-Å. Lindgren, L. Walldén, Phys. Rev. B 66, 153401 (2002).

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