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The structure of the C_{60} monolayer on Pb(111)[1] HSIN-I LI, Physics Department, Penn State University, KATHARINA FRANKE, JOSE PASCUAL, Institut fuer Experimentalphysik, Freie Universitaet Berlin, RENEE DIEHL, Physics Department, Penn State University, LEED, PHYSICS DEPARTMENT, PENN STATE UNIVERSITY TEAM, STM, INSTITUT FUER EXPERIMENTALPHYSIK, FREIE UNIVERSITAET BERLIN TEAM — Low-energy electron diffraction and scanning tunneling microscopy studies indicate that a monolayer of C_{60} on Pb(111) forms a modulated structure having an average C_{60}-C_{60} nearest-neighbor distance of about 10Å, but a period of about 46Å. The data were analyzed in the context of the Tkatchenko method [†], and the monolayer structure was identified as two coexisting higher-order commensurate structures, namely $(\sqrt{169} \times \sqrt{169})R16.90^\circ$ and $(\sqrt{169} \times \sqrt{169})R21.31^\circ$, both with 21 C_{60} molecules and 169 Pb atoms in their unit cells. This modulated structure has implications for the electronic structure of the C_{60} film, as measured using scanning tunneling spectroscopy.
[†]A. Tkatchenko, Phys. Rev. B 75, 235411 (2007).

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