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Surface Geometry of C_{60} on Ag(111)[1] HSIN-I LI, Penn State University, KATARIINA PUSSI, Lappeenranta University of Technology, JULIAN LEDIEU, Nancy University, HEEKEUN SHIN, RENEE DIEHL, Penn State University, DEPARTMENT OF PHYSICS, PENN STATE UNIVERSITY TEAM, DEPARTMENT OF MATHEMATICS AND PHYSICS, LAPPEENRANTA UNIVERSITY OF TECHNOLOGY TEAM, INSTITUT JEAN LAMOUR, NANCY UNIVERSITY TEAM — The geometry of adsorbed C_{60} influences its collective properties. We report the dynamical low-energy electron diffraction and scanning tunneling microscopy studies to determine the geometry of a C_{60} monolayer, Ag(111)-$(2\sqrt{3} \times 2\sqrt{3})30\,^{\circ}$-$C_{60}$ and related density functional theory calculations. The stable monolayer has C_{60} molecules in vacancies that result from the displacement of surface atoms. C_{60} bonds with hexagons down, with their mirror planes parallel to that of the substrate. The results indicate that vacancy structures are the rule rather than the exception for C_{60} monolayers on close-packed metal surfaces and closely related to the anneal.

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