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Molecular Ordering in PCBM Monolayer Films on Ag and Au (111): From μ-aerosol deposited glasses to hcp packing QIAN SHAO, University of Maryland-College Park, LEVAN TSKIPURI, None, JANICE REUTT-ROBEY, University of Maryland-College Park — Functionalized C_{60} and C_{70} fullerenes are increasingly employed as active components in organic electronic devices. The structure of the PCBM electrode interface is expected to strongly impact charge transfer processes in photovoltaic devices. Here we report molecularly-detailed studies of PCBM ordering at coinage metal surfaces. We have developed a vacuum-compatible liquid delivery source to generate thin films of C_{60}- and C_{70}-PCBM from organic solvents. Structure is tracked from the sub-monolayer to multilayer regime on (111)-oriented Ag and Au surfaces with molecular detail by UHV-STM. Glassy morphologies of as-grown films reflect solvent retention. Upon thermal annealing solvent molecules are released and films evolve into ordered packing arrangements that depend upon the PCBM density in the original films. The hcp monolayer phase of C_{60}-and C_{70}-PCBM are newly produced and characterized, indicating the accessibility of new growth phases by μ-aerosol deposition. Acknowledgement: This work was supported by the NSF-MRSEC at the University of Maryland, DMR 0520471.

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