Abstract Submitted
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Templated quasicrystalline molecular layers[1] JOE SMERDON, Jeremiah Horrocks Institute of Mathematics, Physics and Astronomy, University of Central Lancashire, UK, KIRSTY YOUNG, MICHAEL LOWE, SANGER HARS, THAKUR YADAV, DAVID HESP, VINOD DHANAK, Department of Physics, University of Liverpool, UK, AN-PANG TSAI, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Sendai, Japan, HEM RAJ SHARMA, RONAN MCGRATH, Department of Physics, University of Liverpool, UK — Quasicrystals are materials with long range ordering but no periodicity. We report scanning tunneling microscopy (STM) observations of quasicrystalline molecular layers on five-fold quasicrystal surfaces. The molecules adopt positions and orientations on the surface consistent with the quasicrystalline ordering of the substrate. Carbon-60 adsorbs atop sufficiently-separated Fe atoms on icosahedral Al-Cu-Fe to form a unique quasicrystalline lattice whereas further C_{60} molecules decorate remaining surface Fe atoms in a quasi-degenerate fashion. Pentacene (Pn) adsorbs at tenfold-symmetric points around surface-bisected rhombic triacontahedral clusters in icosahedral Ag-In-Yb. These systems constitute the first demonstrations of quasicrystalline molecular ordering on a template.

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