

Abstract Submitted
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Scanning Tunneling Microscopy Analysis of a Pentacene/Graphene/SiC(0001) system

ANDREW YOST, Department of Physics and Astronomy, University of Wyoming, Laramie WY 82071, OZGUN SUZER, Center for Nanoscale Materials, Argonne National Laboratory, Lemont IL 60439, JOSEPH SMERDON, Jeremiah Horrocks Institute of Maths, Physics, and Astronomy, University of Central Lancashire, Preston PR1 2HE, United Kingdom, TEYU CHIEN, Department of Physics and Astronomy, University of Wyoming, Laramie WY 82071, JEFFREY GUEST, Center for Nanoscale Materials, Argonne National Laboratory, Lemont IL 60439 — A complete understanding of the structure of molecular assemblies, as well as an understanding of donor-acceptor interactions is crucial in the development of emergent molecular electronics technologies such as organic photovoltaics. The pentacene ($C_{22}H_{14}$) is a good electron donor in Pentacene-C60 system, which is a model system of an organic photovoltaic cell.. Here we present scanning tunneling microscopy studies of the pentacene(Pn) molecule on Graphene(G) that is epitaxially grown on SiC(0001). In addition to the morphologies reported in literature, several new structures of Pn on on G/SiC(0001) were observed with different periodicity and registry both in monolayer and bilayer coverages of molecules on the surface. Preliminary scanning tunneling spectroscopy of the molecular system is also discussed; well-isolated states and a large HOMO-LUMO gap indicate the Pn is weakly coupled to the grapheme and underlying substrate.

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