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Abstract for an Invited Paper
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**Tuning the Optoelectronic Properties of Organic Semiconductor Crystals with Monolayer Graphene
Templates**

TRISHA ANDREW, University of Massachusetts Amherst

Crystal orientation in organic thin films is one of the key parameters that determine interfacial energetics, absorption profile and cross section, exciton diffusion length, exciton dissociation efficiency, and charge collection efficiency. These properties can be effectively tuned using monolayer graphene templates that change the crystal orientation of anisotropically-shaped organic semiconductor crystals. We will discuss the effects of graphene templating on the band edge positions, Fermi levels, surface electrostatic potentials, and optical properties of a small selection of small-molecule semiconductors. Further, the photogenerated charge extraction properties of bare graphene electrodes and their ultimate ramifications on photovoltaic device performance will be discussed.