

Abstract Submitted
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Intermolecular bonding in conjugated polymers: The effect on aggregate morphology. JEREMY SCHMIT, Brandeis University, ALEX LEVINE, UCLA — Intermolecular interactions play an important role in the mechanical and optical properties of conjugated polymer films and solutions. However, the nature of such inter-polymer interactions is poorly understood. We present a calculation showing that in the tight-binding approximation, conjugated polymers that approach each other on the angstrom length scale will form weak, covalent-like bonds. These bonds then drive the formation of aggregate structures. The morphology of the aggregates formed by the polymers depends on the net binding strength of the interaction. At low bond strength, the polymers form loose aggregates, while strong bonds lead to the formation of tight bundles with an effective persistence length one order of magnitude greater than the free polymer.

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