Tuning Charge Transport with Intermolecular Interactions of an Organic Semiconductor

Dr. Aron Huckaba, Department of Chemistry, University of Kentucky

Abstract: Compared to metals, organic molecules do not conduct charges very well. Even so, organic charge conducting materials based are becoming more important to our society as our electronic devices and display screens become smaller and more lightweight. Efforts towards making better charge conductors in recent years have used ionic dopants and non-crystalline molecules or highly crystalline molecules. Unfortunately, the ionic dopants often shorten device lifetimes and it is difficult to control how the crystallization of the highly crystalline materials. Towards synthesizing better organic charge conductors, the approach that is being taken in my group is to control molecular crystallinity using intermolecular like hydrogen bonding. This talk will cover my group's attempts so far at attaining this lofty goal.