

Abstract Submitted  
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**Exciton dynamics in paracyclophane coupled dimers** JEREMY MADDOX, University of California Irvine, JEONGHO KIM, University of Chicago, ANDREW MORAN, University of Chicago, JANICE HONG, University of California Santa Barbara, GUILLERMO BAZAN, University of California, NORBERT SCHERER, University of Chicago, SHAUL MUKAMEL, University of California Irvine — Understanding and manipulating through-space electronic communication within aggregates of organic fragments with delocalized bonding structures can impact a range of nanotechnology applications. However, interrogating aggregates of this type has encountered multiple difficulties in the past, ranging from heterogeneity of environments in the solid to the ill-defined geometry of intermolecular contacts in solution. These difficulties are circumvented by designing aggregates which contain [2.2]paracyclophane contacts among molecular units with well-defined architectures and dimensions. These offer excellent control over the distance and relative orientation of the participating units and provide a model system for detailed examination of the molecular structure-function relationship of conducting polymeric materials. We present a comparative experimental and theoretical study of a model complex consisting of two (oligo)phenylenevinylene chromophores that are strongly coupled through a paracyclophane junction. Ultrafast pump-probe anisotropy measurements are compared with numerical simulations to investigate the nature of exciton dynamics in strongly coupled chromophores.

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