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Singlet fission in reduced dimensions of crystals PAUL TEICHEN, JOEL EAVES, The University of Colorado at Boulder — In some molecular systems the decay of an initially excited singlet into two independent triplets, a process called singlet fission, is highly efficient. Organic crystals are among the most promising candidates for increasing yields in next-generation photovoltaics. Although excitons are known to exist in reduced dimensions of crystals the role of dimensionality in the entanglement of two triplets born out of singlet fission remains unclear. We develop a quantum lattice model for singlet fission to examine the role of quantum entanglement and exciton delocalization.

Paul Teichen
Univ of Colorado - Boulder

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