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Charge-transfer excitons in strongly coupled organic semiconductors PAUL-LUDOVIC KARSENTI, JEAN-FRANCOIS GLOWE, CARLOS SILVA, University of Montreal — Time-resolved and temperature-dependent photoluminescence measurements on one-dimensional sexithiophene lattices reveal intrinsic branching of photoexcitations to two distinct species: self-trapped excitons and dark charge-transfer excitons (CTX; $\gtrsim 5\%$ yield), with radii spanning 2–3 sites. The significant CTX yield results from the strong charge-transfer character of the Frenkel exciton band due to the large free exciton bandwidth ($\sim 400\,\mathrm{meV}$) in these supramolecular nanostructures.

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