Supramolecular polymers as model systems for organic optoelectronics

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In organic optoelectronics, performances are determined by intrinsic molecular properties and emergent functions arising from supramolecular organization. A fundamental understanding of the underlying structure-assembly-property relationships is therefore crucial to define design principles for advanced materials. At the core of the presented research is the use of one-dimensional supramolecular assemblies as model systems for the study of the primary processes at the basis of optoelectronic materials, with the final goal of unlocking new opportunities in energy conversion technologies. In this context, long-lived triplets from singlet fission in pentacene-decorated helical supramolecular polymers and tunable emission from H-type assemblies of tetraphenylethylene monomers in optical nanocavities will be discussed.[1,2]

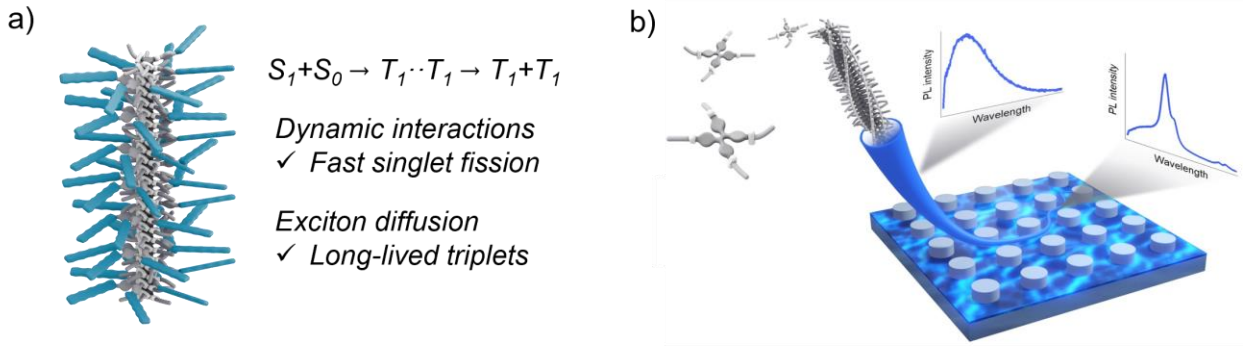

Figure 1: a) Singlet fission in pentacene-decorated supramolecular polymers. b) Tunable emission from stacked tetraphenylethylene assemblies in optical nanocavities.

References:

[1] G. Lavarda, A. Sharma, M. Beslać, S.A.H. Jansen, S.C.J. Meskers, A. Rao, R.H. Friend, E.W. Meijer, *Submitted manuscript*.
[2] G. Lavarda, A.M. Berghuis, K. Joseph, J.J.B. van der Tol, S. Murai, J. Gómez Rivas, E.W. Meijer, *Chem. Commun.* **2024**, *60*, 2812-2815.