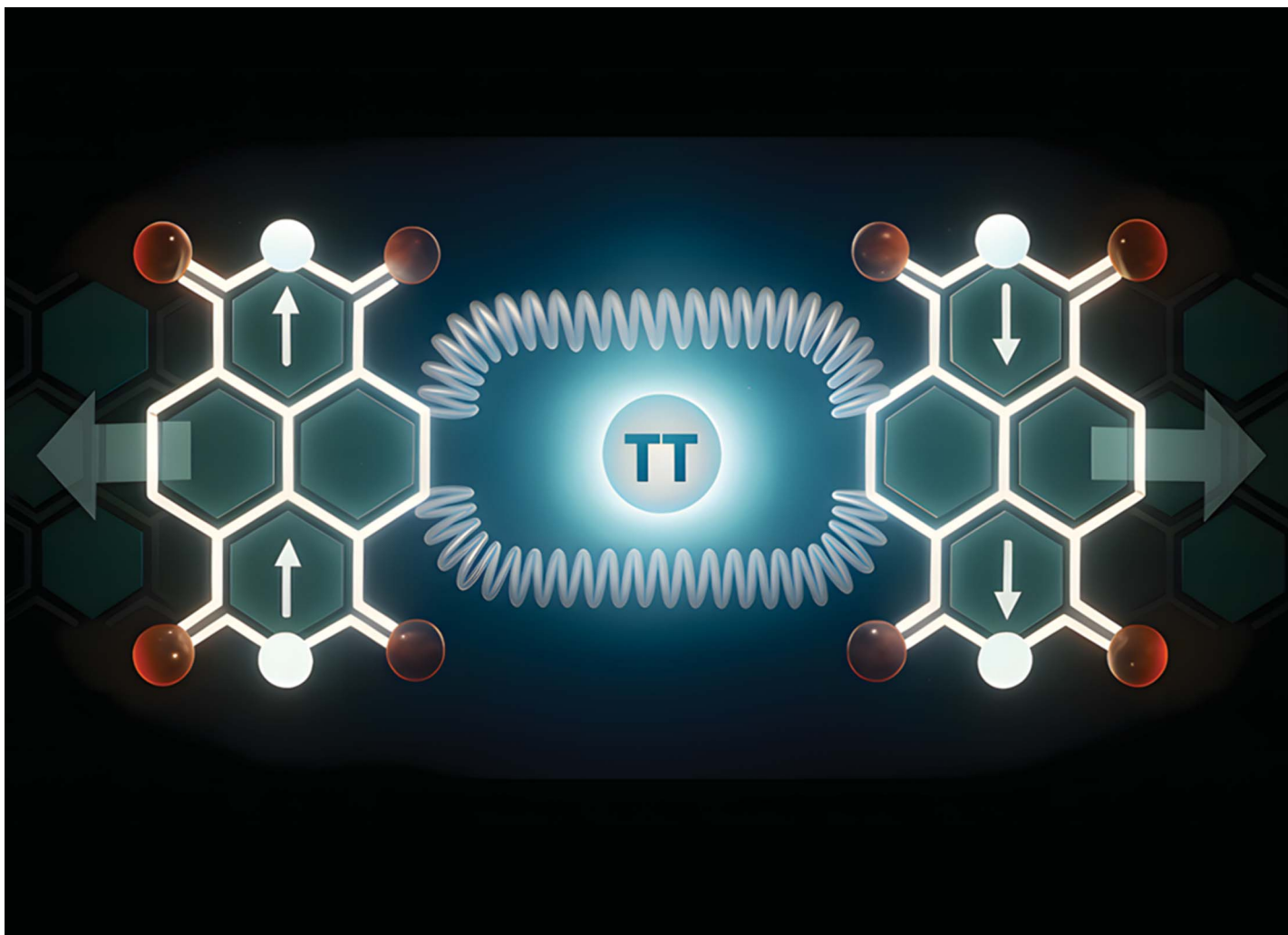




Showcasing the joint collaborative work from the research groups of Professor Jyotishman Dasgupta (TIFR Mumbai), Pritam Mukhopadhyay (JNU New Delhi) and Debashree Ghosh (IACS Kolkata).

An order of magnitude modulation of singlet fission rates in NDI cyclophanes by tuning inter-chromophoric electronic coupling

Through a series of synthetically challenging and structurally well-defined dimeric naphthalene-diimide (NDI) cyclophanes, we demonstrate that ultrafast singlet fission (SF) is dictated by stabilization of the multi-excitonic ¹TT pair state on a dimer-backbone rather than the singlet-triplet energetics of its constitutive monomers. Our work highlights that the rates of SF can be tuned by optimal modulation of the inter-chromophoric distance and orientation, parameters that critically define the electronic coupling.

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See Aisworika Mohanty and Vijay Pal Singh *et al.* *Chem. Sci.*, 2025, **16**, 21368.