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Strategies for enhancing Thermally activated delayed fluorescence

Organic light-emitting diodes (OLEDs) can make full use towards light emission of both, spin-singlet and spin-triplet excited states, when the usually non-emissive triplet state converts to an emissive, yet higher energy singlet states through thermal activation. Such thermally activated delayed fluorescence (TADF) requires high reverse intersystem crossing rates. In my presentation, I shall give examples for several chemical design strategies on how this may be achieved. In particular, I will focus on the role of meta-versus-para-connection between donor and acceptor constituents, and on the role of donor and acceptor strength. The role of triplet-triplet annihilation in the spectra may also be commented on.