

# Tracking Singlet Fission and Intramolecular Charge Transfer in $\pi$ -Conjugated Molecular Backbone

Aisworika Mohanty

Department of Chemical Sciences, Tata Institute of Fundamental Research (TIFR),  
Mumbai, India

Molecules with  $\pi$ -conjugated Donor-Acceptor unit have received significant attention due to their usage in different optoelectronics devices and biological imaging tools.<sup>1</sup> These molecules are known to have Charge transfer interactions between the Donor and Acceptor moiety by redistribution of electronic charge and creating (or destroying) the strong dipoles in the excited states.<sup>2</sup> One of the interesting properties of these molecules is that by changing the Donor-Acceptor strength, we can tune not only the extent of Charge Transfer, but also the triplet state energy.<sup>3</sup> And this tunability makes them promising not only in dye-sensitized solar cells, but also in different Chemo sensors.<sup>4</sup> Here, in this talk, I'll show two different examples where we have tracked Singlet Fission in a push-pull Naphthalene Diimide (NDI) dimeric backbone, and also probed Intramolecular Charge Transfer (ICT) in a new set of Fluoranthene derivatives. Using broadband fs Transient Absorption Spectroscopy, we deduce the nature of the excited state, which I'll discuss in my talk.

## References: -

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