

P31 Synthesis, Optical and Electrochemical Properties of Perylenes Dyes for Solar Cells Applications

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Perylene monoimides or monoanhydrides are being intensively investigated as sensitizers in DSSCs. Keeping only one acceptor group, i.e. imide or anhydride, and introducing a donor group in the 9-position (such as diarylamine) proved to be important in order to obtain a favorable orbital partitioning strength and dipole moment of perylene compounds for DSSCs [1]. One way to control optical and electrochemical properties of perylenes dyes is achieved by functionalizing *peri* and *bay* positions of perylene core with different substituents. In a simplified view, the *peri* groups coarsely tune the spectroscopic and electrochemical properties whereas the *bay* functional groups provide an additional fine tuning [2,3].

Here we report the design and synthesis of new perylene dyes (Figure 1) comprising: (1) a 4-alkoxyphenylamino moiety in the 9-position as a strong donating group, (2) a cyanoacrylic acid as electron acceptor and anchoring group and (3) a triple bond as short and rigid linker between perylene core and the acceptor group [4].

The photophysical properties (i.e. absorption and emission spectra, absorption extinction coefficients, fluorescence quantum yields and lifetime measurements) and electrochemical properties of the new perylene dyes were investigated and all results will be presented and discussed.

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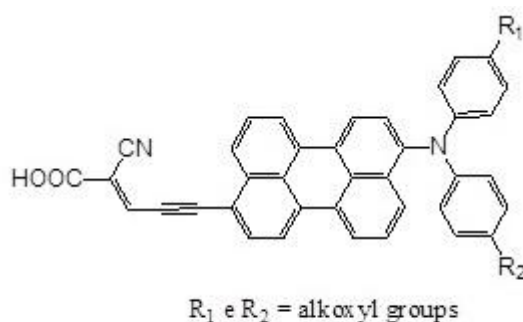


Figure 1

References

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