Poster

EFFICIENT PHOTOINDUCED ELECTRON TRANSFER IN FULLERENE BASED MOLECULAR WIRES

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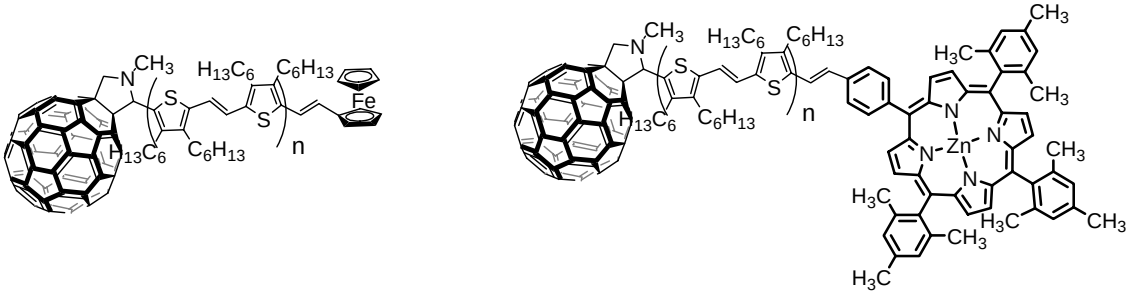
In recent years, donor-bridge-acceptor systems where a C_{60} cage and a strong donor are covalently linked by a linear π-conjugated system have attracted a great interest to obtain efficient photoinduced electron transfer.[1] π-conjugated oligomers exhibit intense and broad absorption bands in the visible region and due to their remarkable light harvesting capability, oligophenylene-vinylene (OPV) chains have been employed as bridge and antenna.[2] Moreover, dyads involving oligothienylenevinylenes (OTV) moieties, which exhibit low oxidation potentials, have been prepared and studied showing that the OTV units not only act as antenna but they are able to act as donor unit as well.

In the present study, new triads Ferrocene-OTV-C_{60} [3] and Zn-Porphyrin-OTV-C_{60} (Figure 1) have been designed and prepared in a multistep synthetic procedure. Efficient photoinduced charge separation with quantum yields close to unity and lifetimes for the charge separated state in the order of μs were found. The effect of the nature of the donor and the length (n = 2 to 8) of the OTV bridge in the photoinduced electron transfer processes will be discussed.

Figure 1



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