

Distance-Dependent Electron Transfer Kinetics in Axially Connected Silicon Phthalocyanine-Fullerene Conjugates



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The front cover artwork is provided by the groups of Prof. Sastre-Santos, Prof. D'Souza, and Prof. Karr. The effect of donor-acceptor distance in governing the kinetics of electron transfer is demonstrated using different linkers between silicon phthalocyanines and C_{60} . The cover shows the molecules playing soccer. Read the full text of the Article at 10.1002/cphc.202000578.

What is the most significant result of this study?

We demonstrate the importance of the distance between donor-acceptor entities in multichromophoric conjugates in governing the excited state electron transfer events. In the case of C_{60} -SiPc- C_{60} **1**, where the SiPc and C_{60} are separated by a phenyl spacer, faster electron transfer was observed with k_{cs} around $2.7 \times 10^9 \text{ s}^{-1}$ in benzonitrile. However, in the case of C_{60} -SiPc- C_{60} **2**, a slower rate of electron transfer with k_{cs} equal to $9.1 \times 10^8 \text{ s}^{-1}$ was observed due to increased donor-acceptor distance.

How did each team member/collaborator contribute to the work?

The Elche team made the synthesis and the chemical characterization. The Texas team contributed with all the photophysical studies and Paul Karr carried out the theoretical studies.

What was the inspiration for this cover design?

We want to congratulate the Elche Football Club for promotion to first division soccer in Spain and congratulate the US-Women Soccer team for winning world cup. C_{60} represents the

soccer balls and silicon phthalocyanines (SiPc) the shield of the team. The SiPc(C_{60})₂ with longer linker represents the second division player having a lower electron transfer rate, and the SiPc(C_{60})₂ with shorter linker the first division player with a faster electron transfer rate.

Who designed the cover?

Luis Martín Gomis made the cover artwork. Ángela Sastre-Santos had the idea of the design and Fernando Fernández-Lázaro helped with the cover design.

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