

**Charge and Energy Delocalisation and Migration in  
Supramolecular Porphyrinic Assemblies:  
Flash-Photolysis and Pulse-Radiolysis Time-Resolved  
Microwave Conductivity Studies**

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Three very different experiments will be described by which fundamental information can be gained about the interaction between porphyrin units in a supramolecular assembly: a) measurement of the S1 and T1 excitonic interactions (polarisabilities) in covalently bridged linear porphyrin arrays; b) measurement of the charge mobility (hopping time) within the columnar stacks of discotic liquid crystalline porphyrin derivatives; c) measurement of the charge separation efficiency and triplet state diffusion coefficient in TiO<sub>2</sub>/porphyrin (semiconductor/antenna) bilayers. The unifying factor is the combination of pulsed excitation or ionization techniques with nanosecond time-resolved detection of changes in the complex conductivity (permittivity) of the irradiated medium using microwaves.