Experimental Characterization of Dye-sensitized Solar Cells

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This talk will give a survey of experimental methods that are currently used in our laboratory to investigate the properties of dye-sensitized solar cells. The interpretation of the data obtained will be discussed and related to models of charge transport and interfacial electron transfer.

1. *Steady state methods*

   IPCE measurements: effects of chopping, bias illumination.
   IV measurements: determination of internal Fermi level using 'top electrode'

2. *Non steady state methods*

   IMPS and IMVS and time resolved equivalents
   Impedance
   Modulated infrared transmittance
   Photoinduced absorption spectroscopy
   Photovoltage decay
   Charge extraction method
   Infrared decay
   Photovoltage risetime
   Galvanostatic measurements

3. *The multiple trapping model*

   Quasi-static approximation
   Determining the electron diffusion length
   Deviations from ideality

References

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