Conducting Polymer-Dye Composites for Photoelectrochemical Solar Cells and EnergyStorage

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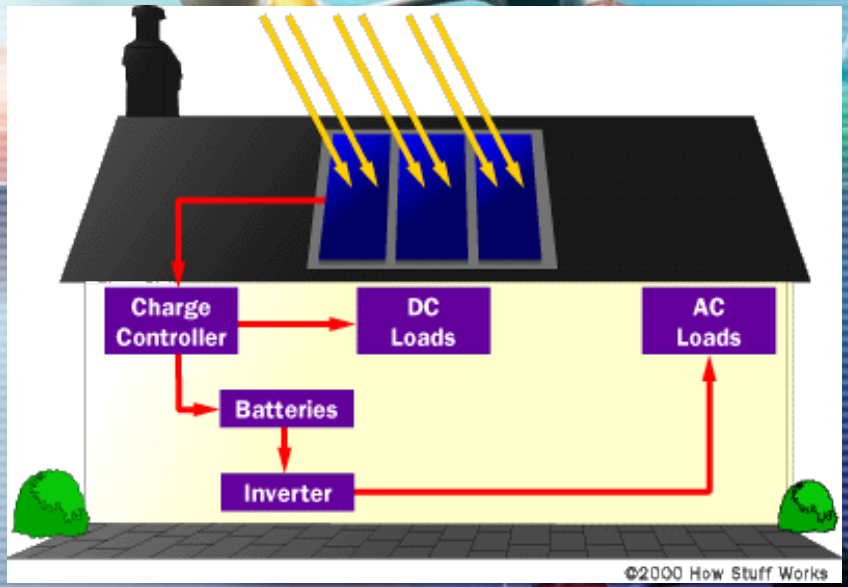

New Device:

Concurrent Solar Energy Harvesting and Charge Storage

USF
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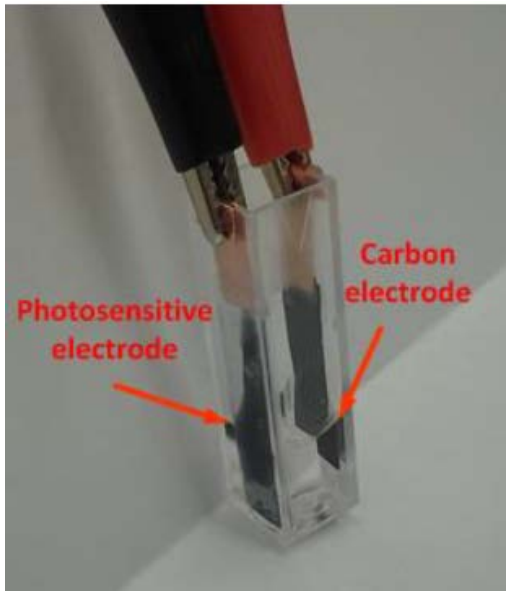
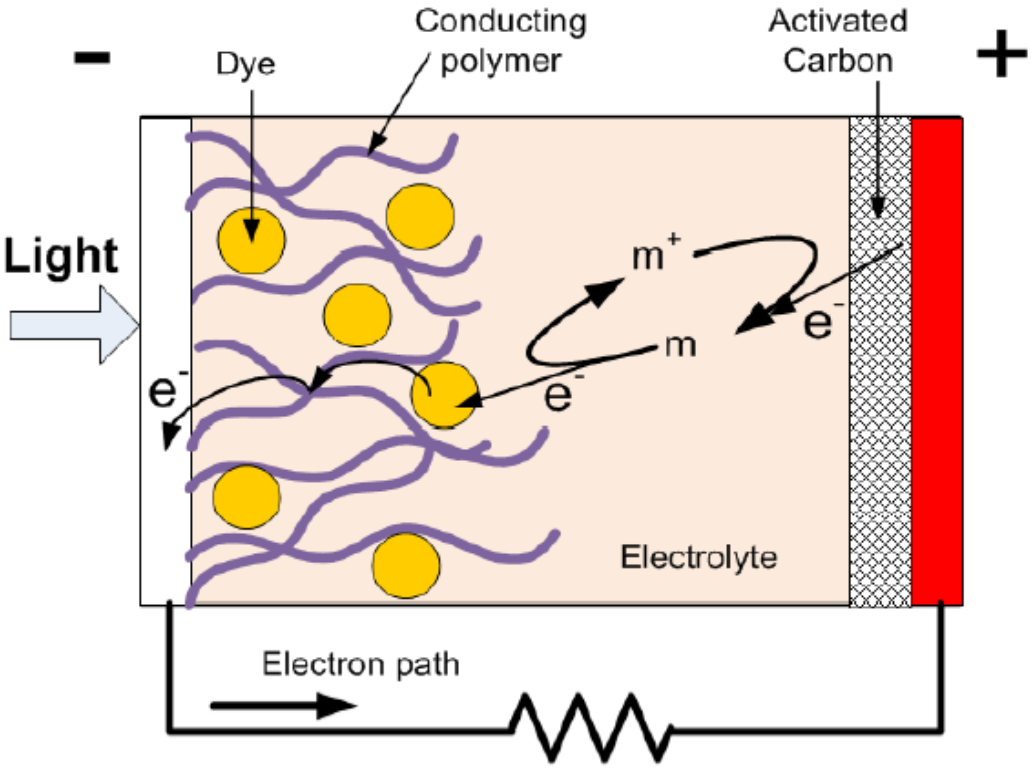
- Conducting Polymer-Dye Composite material for the electrode

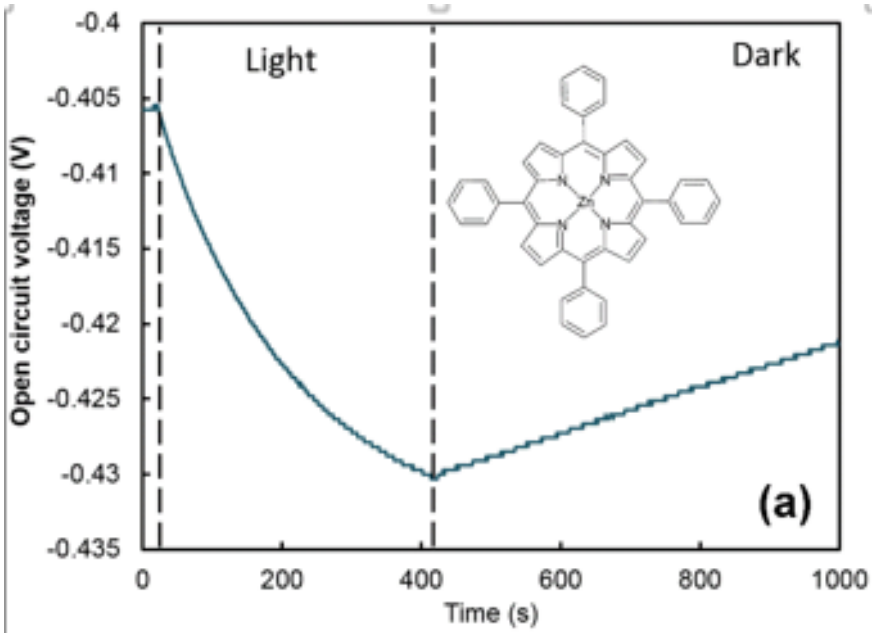


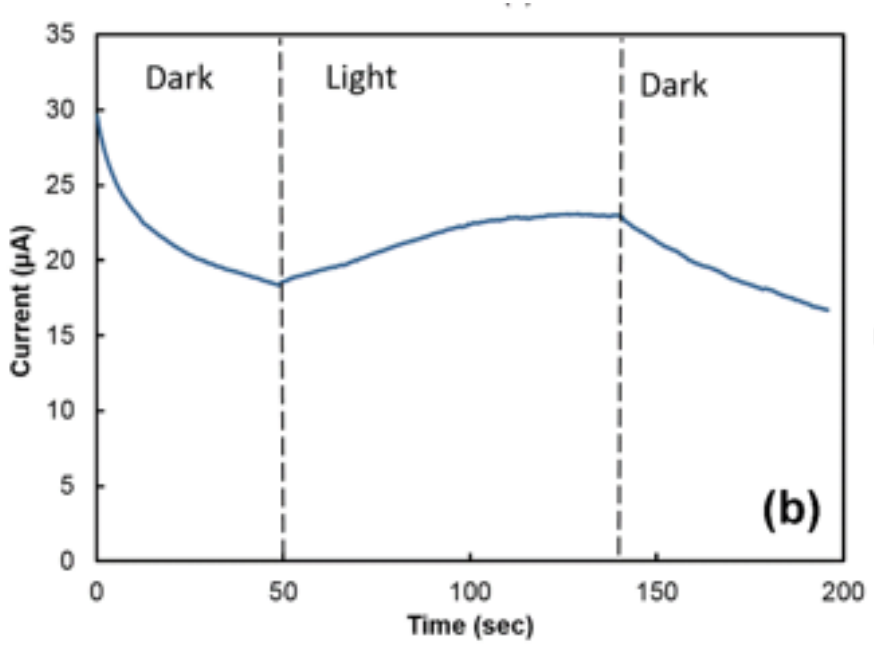


New Device: Open Circuit Voltage

~ 430 mV OCP; 400sec illumination ➔ ΔV= 25 mV

Capacitance =~0.2 mF





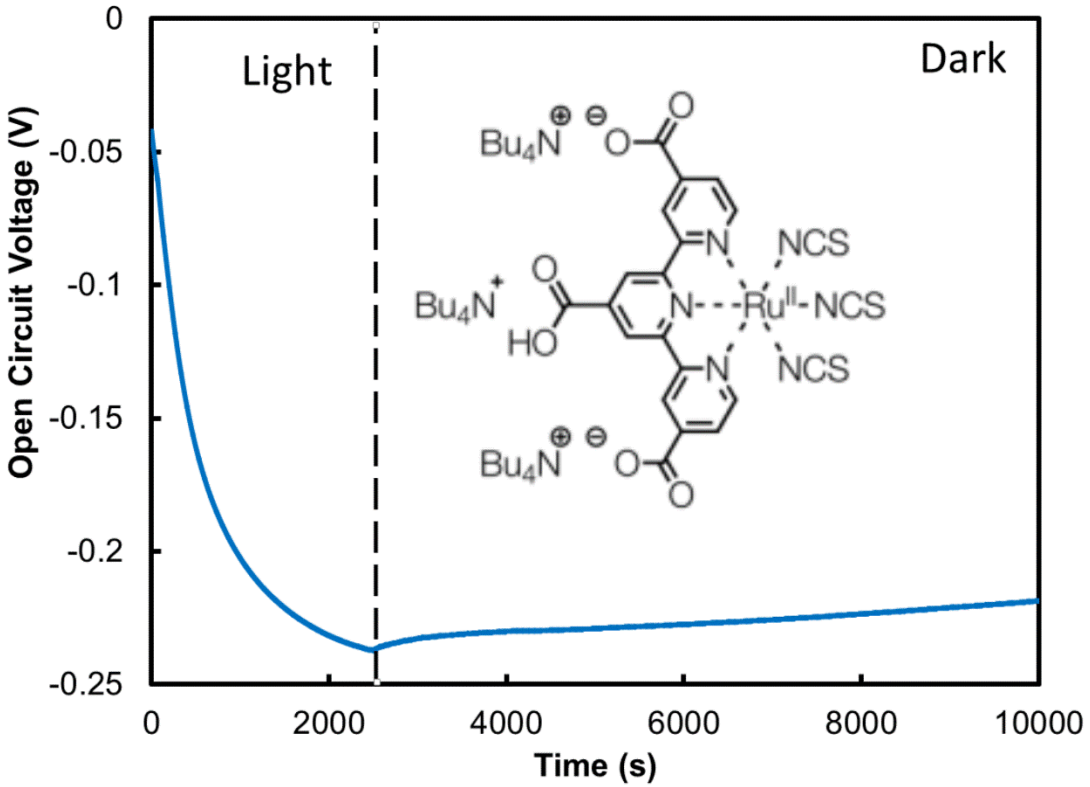
A. Takshi, et al., *J. of Power Sources* (2015), 275, 621-626.

New Device: Open Circuit Voltage

OCP=238mV

Discharge < 10mV

in 2 hr



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Conclusion and Future plan

- Conclusion:
  - Demonstrating the potential of a conducting polymer-dye composite for concurrent solar energy harvesting and charge storage
  - More than 2 hrs of charge stability in the composite
- Future Plan:
  - Study the mechanism of charge transfer
  - Study the effect of the materials (i.e. polymer &dye) and their composition

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