

Fabrication and Characterization of a Dye-Sensitized Solar Cell

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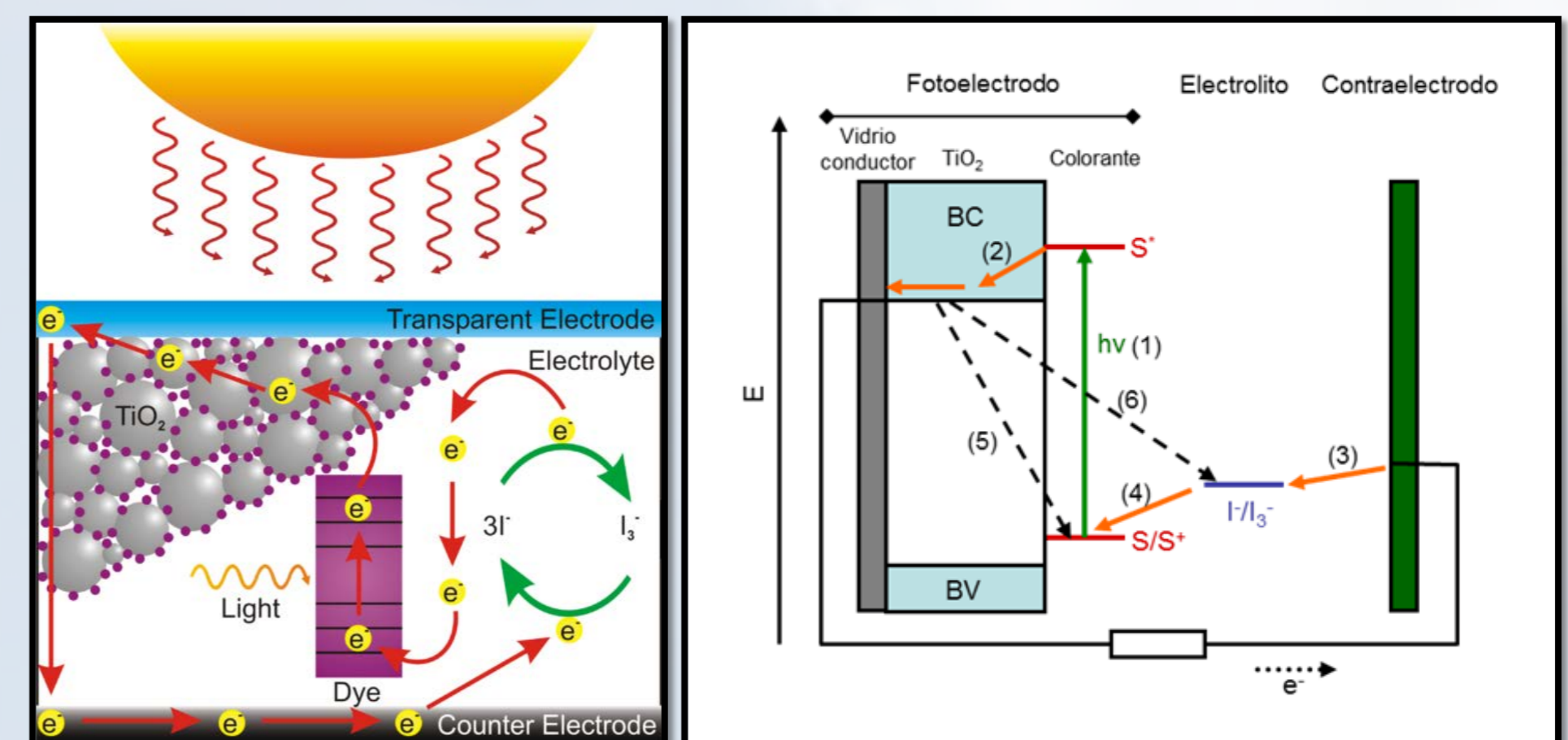


INTRODUCTION.

Dye-Sensitized Solar Cells (DSSC), also known as Gratzel Cells, were presented for the first time in 1988 as an alternative to conventional Silicon Cells. Instead of the silicon layer the main components of these solar devices are a titanium dioxide layer and dye.

DSSC	Silicon Cell
Cheap	Expensive
Flexible or Rigid	Rigid
Semi-transparent	Opaque
Low-term stability	Long-term stability
$\eta = 12\%$	$\eta = 22\%$

STRUCTURE AND WORKING PRINCIPLES



- (1) Dye Excitation
- (2) Electron Injection
- (3) Redox Reaction
- (4) Dye Regeneration
- (5) Electron Dye-Recombination
- (6) Electron Triiodide-Recombination



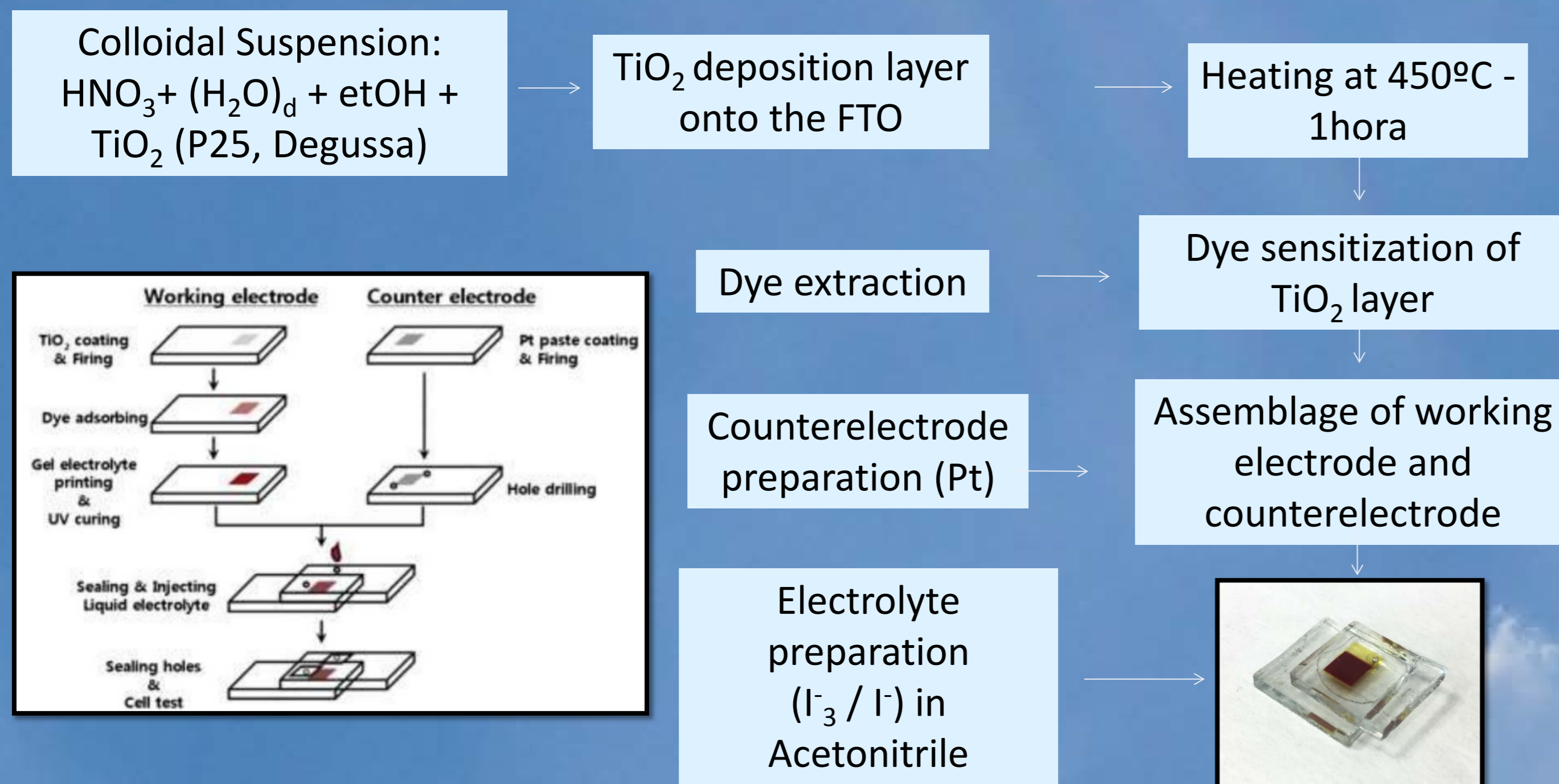
OBJECTIVE.

To investigate the applicability of different dye in DSSC.

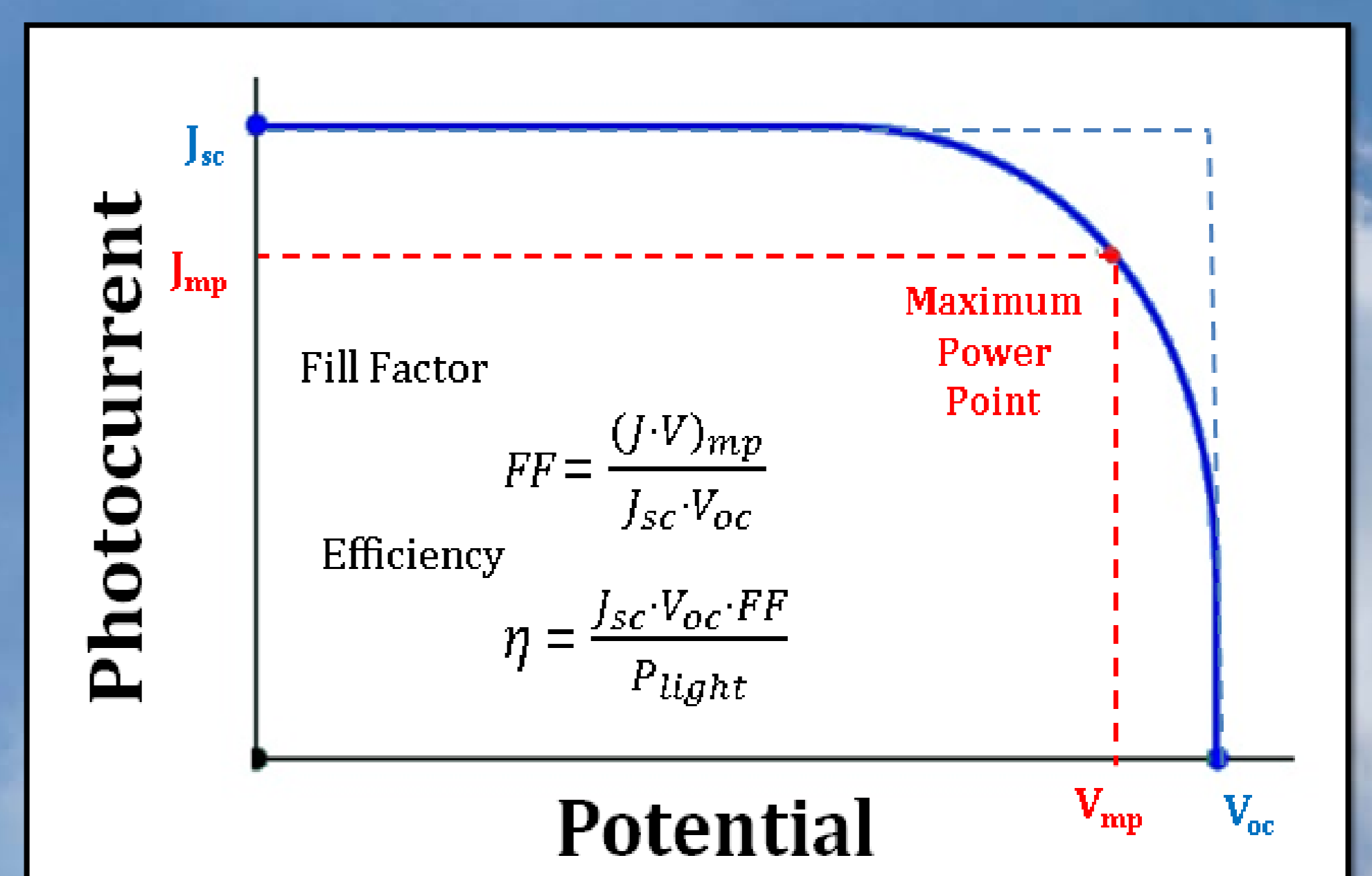
- To analyze:
- Chemical structure of the dye (-OH or -COOH).
 - Absorbance spectra in the UV-VIS spectra of the dye.
 - Electron injection or dye regeneration efficiency.



HOW TO FABRICATE DSSC?

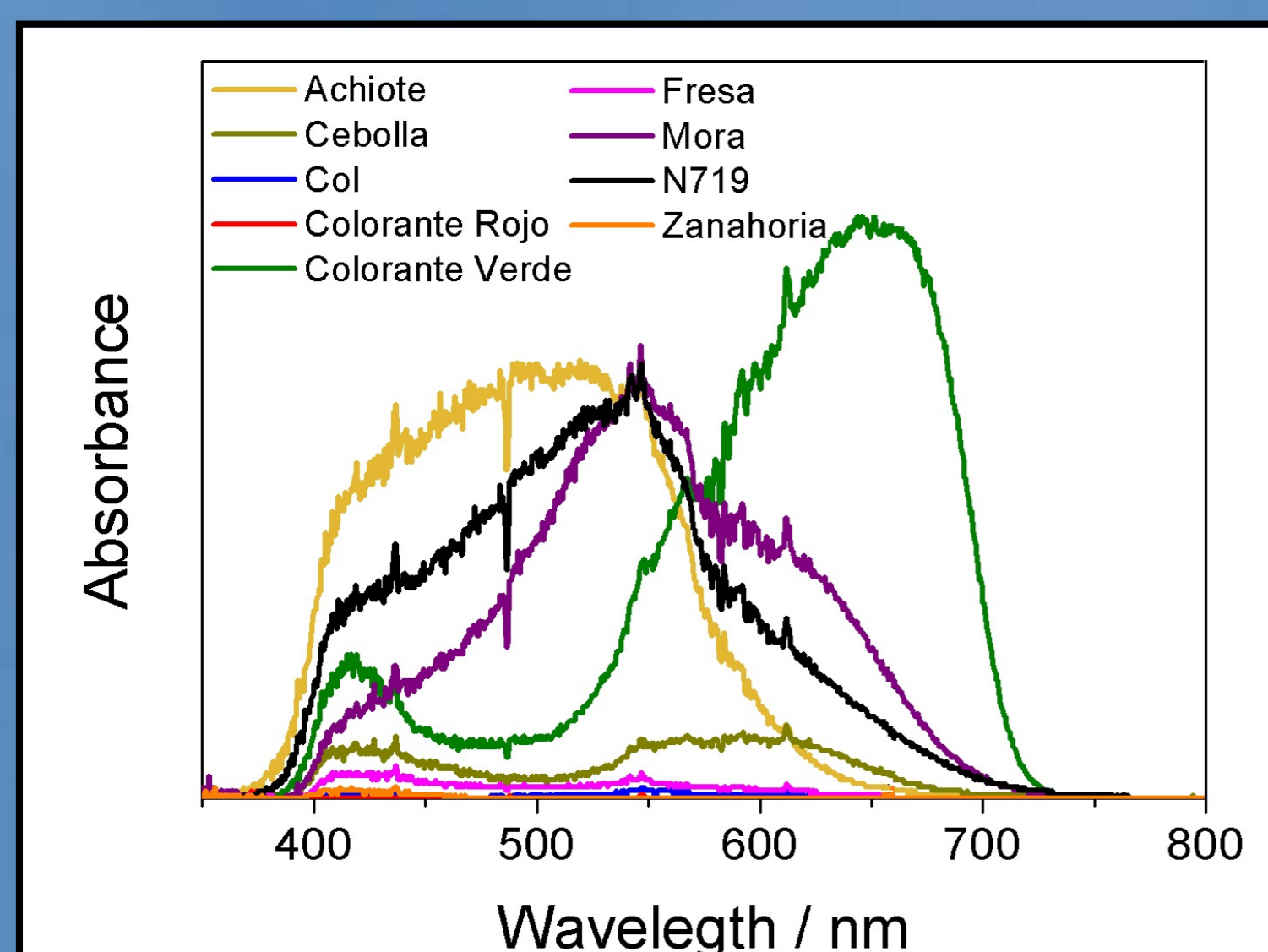


HOW TO CHARACTERIZE DSSC?

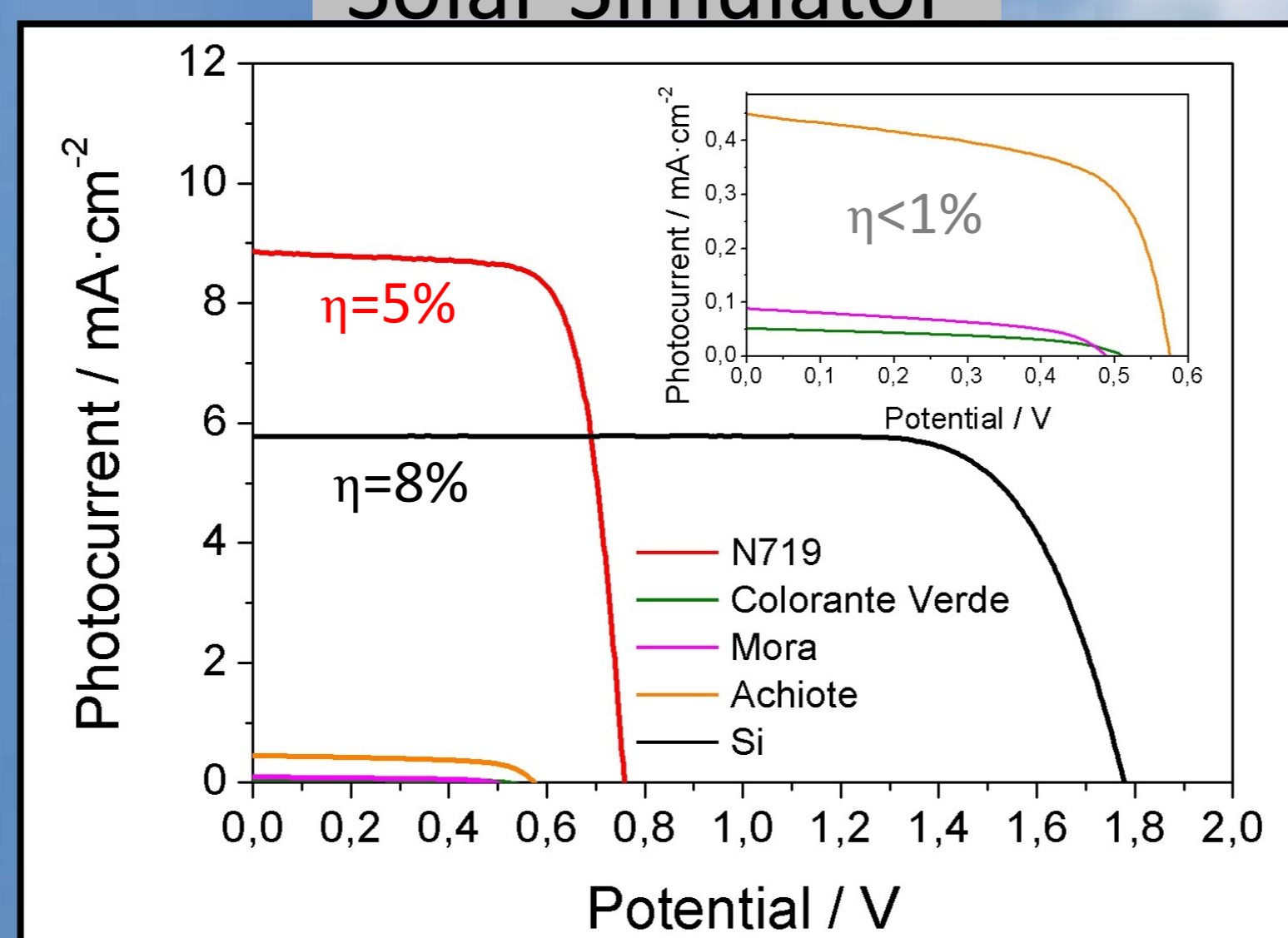


RESULTS AND DISCUSSION

Solar Simulator

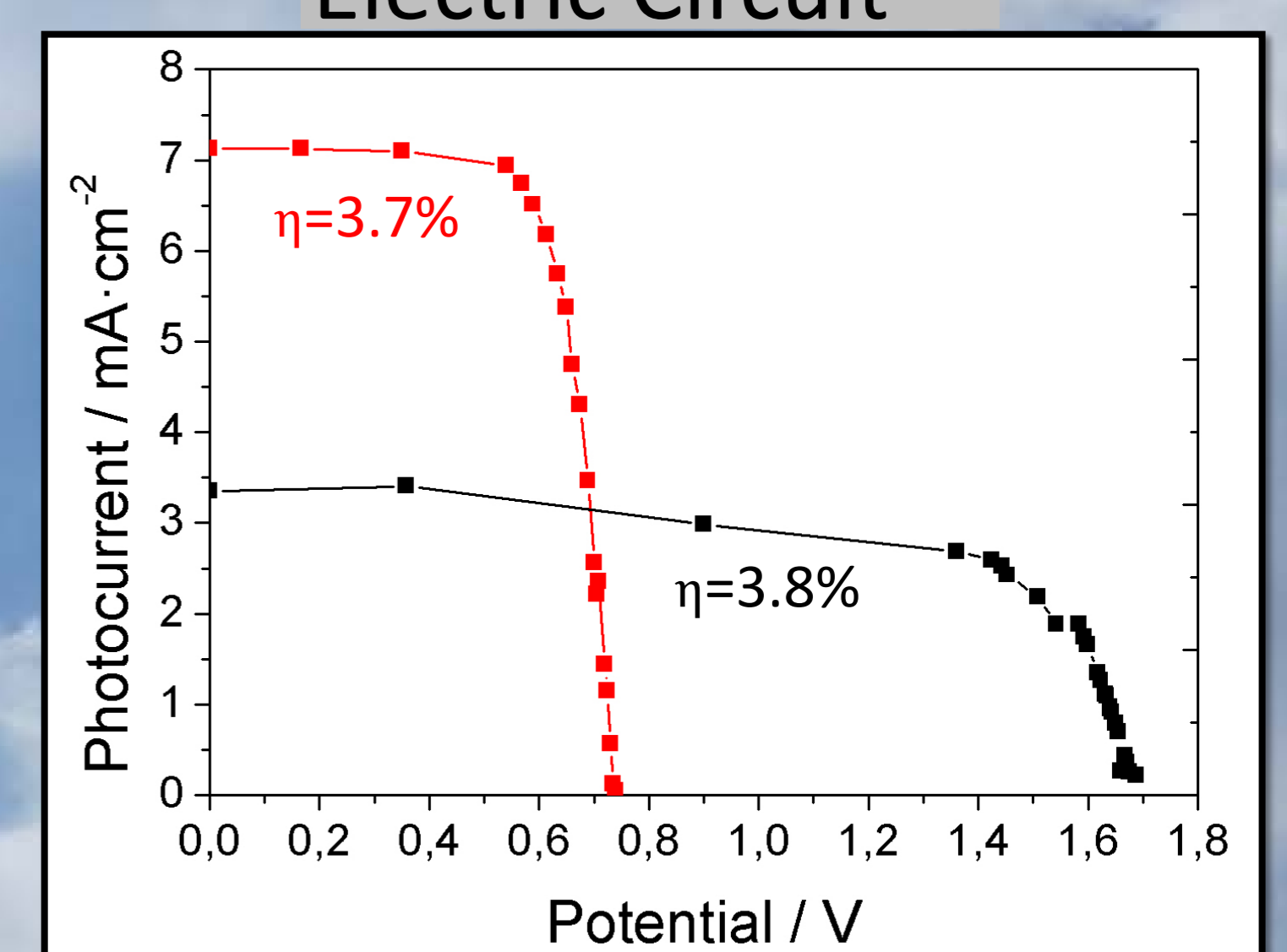


Achioté Cebolla Col Fresa
Mora Color. Rojo Color. Verde
Zanahoria N719



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Electric Circuit



DSSC (N719) vs Silicon Cell

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