



## Iodine-Free Electrolyte for Dye-Sensitized Solar Cells

### VALUE PROPOSITION

This novel electrolyte delivers the following advantages :

- Classic  $\text{TiO}_2$  based DSSC reaching 3.5% overall light-to-electricity conversion efficiency in early implementations under AM1.5 solar light.
- Easy deposition of the electrolyte mixture on the nanostructured electrodes.
- Non-aggressive electrolyte composition based on commercially available materials.
- Early indication of performance robustness towards oxygen ingress.

### IP STATUS

A priority patent application was filed in the UK in Q2 2013

### OPPORTUNITY

Evaluation & Licensing Opportunity.

### INVENTORS

Professor Ravi Thampi and colleagues, UCD School of Chemical and Bioprocess Engineering.

Dye-Sensitized Solar Cells (DSSCs) are an emerging low-cost third generation photovoltaic technology particularly suited for efficient light-to-electricity conversion in indoors low-light environments. Electrolyte leakage due to the corrosive nature of iodine/iodide-containing electrolytes is currently the key issue preventing the technology's productisation and wider deployment.

### Market / Industries

Within the large global market for photovoltaics, DSSCs are believed to be strong contenders in applications such as portable/disposable electronics, mobile devices, wireless sensors, smart labels and Building-Integrated PV.

According to IDTechEX, the market for DSSCs will grow to \$290M by 2023.

### Technology Description

UCD researchers have invented a new type of quasi-solid-state electrolyte based on metal oxides and viscous non-volatile solvents available off the shelves.

### Technology Status

The electrolyte formulation, processing into cells and validation for improved long-term cell robustness is on-going and will be supported by public funding until the end of 2014.



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## Licensing Opportunity

### CONTACT

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