

## **RDG-06-24: Development of Materials and Interface Engineering Technologies for Dye-Sensitized Solar Cells**

### ***Project***

During the past decade, refinements in the chemical components of the cells, improvements in cell physics, and device engineering have led to remarkable enhancement in the performance of the dye-sensitized solar cells. The opportunities and potential payoff here are significant: low-cost, large-area, flexible, high-efficiency solar cells. The basic research goal is developing highly efficient materials and engineering interface to improve conversion efficiency and thus obtain robust, scalable efficiencies of over 13% in cheap, dye-sensitized solar cells through the international collaborations between Partner countries.

### ***Participation***

#### ***Manager***

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#### ***Partners***

Japan (Kyushu Institute of Technology)

United States (National Renewable Energy Laboratory)

### ***Objectives***

To develop materials and interface engineering technologies for dye-sensitized solar cells through the international collaboration of Partner countries.

### ***Milestones***

- Year 1     Development of interface control and carrier transport evaluation technique
- Year 2     Design and synthesis of materials for dye-sensitized solar cell: TiO<sub>2</sub> nanostructure and Dye materials
- Year 3     Fabrication and evaluation of high efficiency (~13%) dye-sensitized solar cells.

### ***Location***

Korea Institute of Science and Technology (KIST), Seoul, Korea

### ***Resources***

Total: 2.7 M USD (from Partner countries) in cash

\* Budget is to be allocated among participants and may vary according to the participants' consultation.