

## Flexible Nano-Carbon Counter Electrode for Low Cost and Efficient Dye-Sensitized Solar Cell

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Dye sensitized solar cells (DSSC) have become the most promising alternative to the conventional silicon-based solar cells. Although high energy conversion efficiency and good stability was achieved by using Pt as a counter electrode, cost and high temperature sintering demand the development of a low cost and stable electrocatalyst for tri-iodide reduction. We fabricated DSSC with different thickness carbon counter electrode. Carbon powders with an average particle size of 30–50nm were ultrasonically dispersed in ethanol solution and spray coated onto (PET/ITO and FTO) plastic and glass substrates at 100 °C. Thickness of the carbon electrode was controlled by varying the spray deposition time. It was found that RCT of 420sec spray deposited carbon electrode in iodide/tri-iodide redox electrolyte is less than the Pt electrode. Current-voltage characteristic of the fabricated DSSC was measured using a solar simulator under one sun illumination (100mW/cm<sup>2</sup>, AM 1.5). Flexible Nano-carbon counter electrode DSSC showed energy conversion efficiency and stability comparable to the Pt counter electrode (CE) based DSSC.