Editorial

Photovoltaic Materials and Devices 2014

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Ever increasing demand on the energy has fostered many new generation technologies, which include photovoltaics. In recent years, photovoltaic industry has grown very rapidly. The installed capacity of PV for 2013 was about 37 GW and 2014 sales are expected to be around 45 GW. However, there has been excess production for last several years, which is responsible in part for the low prices (about 60 ¢/W). To lower the PV energy costs further, a major strategy appears to be going to high efficiency solar cells. This approach is favored (over lower cost/lower efficiency) because cell efficiency has a very large influence on the acceptable manufacturing cost of a PV module. Hence, the PV industry is moving toward developing processes and equipment to manufacture solar cells that can yield efficiencies >20%. Thus, further research is needed within existing technologies to accomplish these objectives. Likewise, research will continue to seek new materials and devices.

This is the third special issue of International Journal of Photoenergy on Photovoltaic Materials and Devices and is aimed at selection of papers on recent advances in materials and PV systems. This issue contains thirteen papers on various aspects of photovoltaics. These fall into four broad categories:

- (1) advances in conventional solar cells and materials based on microcrystalline Si, modeling of bandgap-tailored CIGS, and characterization and process modeling of new materials and device designs;
- (2) design and applications of grid connected arrays and applications to building integration: of particular importance in concentrator application is the effect of nonuniform illumination;

- (3) novel materials: fullerene-based OPV and improvements in preparation of dye sensitized solar cells;
- (4) investigations on cuprous oxide, MoTe_2 , $\text{Cu}_{1.4}\text{Te}$, and CZTS by sol-gel method.

We hope that readers enjoy this issue.

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