

## Alternative Solar Cells

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The physical principles underlying the photovoltaic effect in organic-based solar cells and dye-sensitized solar cells are described and compared to those in conventional solar cells. The photo induced chemical potential gradient created by the interfacial dissociation of excitons is an important, and frequently overlooked, driving force for charge separation in organic photovoltaic cells. Photovoltages up to 1 V have been obtained in cells without any built-in potential, despite misconceptions that this is impossible. The importance of exciton transport and of the photo generated interfacial electric field is emphasized. The advantages and disadvantages of several different types of alternative solar cells are discussed.