CHAPTER 17

ZnO Nanostructures for Dye-Sensitized Solar Cells Applications

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1. INTRODUCTION

Due to growing demand for energy, combined with the depletion of fossil resources and global warming, environmentally sustainable energy technologies are urgently needed to find an alternative resource to solve the energy problem without environmental depletion. Among the existing renewable energy resources including wind turbines, hydropower, wave and tidal power, solar cells, solar thermal, biomass-derived liquid fuels, and biomass-fired electricity generation, photovoltaic technology is considered as the most promising candidate.

Due to these vast future problems, there is an urgent need to find alternative energy sources. There should be some requirements for new energy alternatives such low cost and efficiency. Moreover, climate protection and supply security are also central topics of the future of energy supply. One viable option to cover our future energy needs is solar cells. Conversion into electrical power of even a small fraction of the solar radiation...