INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
SHORT ABSTRACT OF THESIS

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SHORT ABSTRACT

Energy is a very important resource for our daily needs and economic activities. The natural energy resources are divided in two types viz., i) primary and ii) secondary. The fuels which generate energy in its raw form (without undergoing any conversion process) are termed as primary, e.g. fuel wood, coal, and natural gas. Secondary energy like petrol and electricity is made from the processing of primary fuels. The energy sources are further classified as non-renewable and renewable energy. The non-renewable energy sources like coal, petroleum and gas generally produces hazardous residues after its utilization. Therefore, the sustainable and eco-friendly energy technologies are attaining huge research attention to cope up with the demand of green energy. Hence, this chapter elaborates the development of technologies to generate renewable and green energy i.e., solar energy. In addition, the methods, materials, device architectures of polymer and perovskite solar cells were briefly discussed along with its varied measurement techniques. Further, a description about the engineering of polymer and perovskite materials is also presented where photoactive modulation highly efficient and stable polymer and perovskite solar cells were fabricated. Finally, the chapter ends with a synopsis of this thesis.