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PV solar cells performance using some synchrotron radiation characterization techniques

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Abstract content

Solar Cells, particularly Photovoltaic (PV) based on thin film, monocrystal, polycrystal still dominating the market and attract attentions from the scientific researchers. Making some new areas to grow; such electronics, sensors, biology and so forth. Since the cost of these research become cost effective, it starts to impact in the interested parties from the industry. The key activities of such research is to improve the energy conversion of solar cells understanding the nanoscale properties of the material, especially in catalysis, storage, and solar cells, such Silicon and Carbon based materials. The physical, mechanical and chemical properties of the material are involved for performance of semiconductor device material. In this work we focus our approach on three following points: • First, we would like to show the potential of the state of the art of the Synchrotron Radiation beamline techniques and some knowledge and experience that could help to provide a better solution to the problem. • Secondly, using this competitive and capacity research, the reliable results could be complementary or reference to validate some conventional laboratories measurement techniques considering the consistency. Lately, such concern try to contribute in solving the lack of reproducible scientific results. • Thirdly, the work the Synchrotron Radiation techniques will contribute to reveal an insight structural and an electronics view of the PV solar cells device energy conversion. The technique shows the chemical bond and chemical state too in nanoscale structure, its element impurities identification and distribution related to electrical macroscopic scale characteristics of device behaviour, is a unique to solve the complexities of the problem.

Summary

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