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Flexible quantum dots sensitized Solar cells

Absorption of light, generation of charges carriers (electrons and holes), the separation of the electrons from holes and their transport to electrodes, are the sequence of events of solar energy conversion.

Different nanostructures have been employed in the structure of solar cells, to improve its efficiency with simple manufacturing process and low cost.

Zero dimensional nanostructures have gained interest due to their unique properties especially tuning their band gap based on their size and multiple exciton generation.

One dimensional nanostructures are promising for PV devices due to several advantages. They offer large surface

area, high optical absorption across a broad spectrum, direct path for charge transport and high charge collection efficiency.

Graphene has recently emerged as an alternative to ITO substrate as an electrode in solar cells structure. With its remarkable electrical, physical and chemical properties, and high degree of flexibility and transparency; it is considered as an ideal candidate for flexible 3rd generation solar cells, the graphene solar cells an eco- green technology is getting to the same level of ITO based solar cells.

This presentation is about presenting a flexible quantum dots sensitized solar with graphene electrode .

Biography

Basma El Zein, PhD, SMIEEE, Solar Pioneer, Lifetime Achiever. Dean of Scientific Research at the University of Business and Technology (UBT). She has 18 years of experience in academic and research institution. She was a Research Scientist at KAUST, and an associate researcher at IEMN, Lille, France. Her recent research interests include working on nanostructures for third generation solar cells, energy harvesting and energy storage. She gained 2 grants, to support her research on Nanostructures for Photovoltaic applications. She is a reviewer in many international, peer-reviewed journals, the chair or co-chair and on the committee of different international conferences; she published in many international journals and had one patent filed in USA.

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