Basma El Zein, J Nanomed Nanotechnol 2016, 7:2 (Suppl)
http://dx.doi.org/10.4172/2157-7439.C1.027

6th Global Experts Meeting on

Nanomaterials and Nanotechnology

April 21-23, 2016 Valencia, Spain

Basma El Zein

University of Business and Technology, Saudi Arabia

ZnO nanostructures for quantum dots sensitized solar cells

Nano-materials are considered as building blocks of many optoelectronic devices. They differ from bulk counterpart in the size, characteristic and their new physical properties and offer new opportunities to be employed in various applications. Zero dimensional (0D) and one Dimensional (1D) nanostructures have attracted lots of attention in solar energy harvesting, conversion and storage, owing to their unique physical and chemical properties. Zinc oxide (ZnO) nano-wires provide separation and transportation of the generated carriers by the excitation of the attached Quantum Dots (QDs). The geometry of the NWs arrays allows improved optical reflection and light trapping leading to enhancing the light absorption. Furthermore, ZnO NWs will drive and direct the transportation of the photo-generated electrons, and thus improving the energy conversion efficiency of the solar cell. In this presentation, we will discuss one dimensional nanostructure in quantum dots sensitized solar cells and the role they play in increasing the conversion efficiency of solar cells, taking in consideration the materials to be used to meet the main objective of developing an eco-green solar cell with high conversion efficiency.

Biography

Basma El Zein is the Director of Research and Consultation Center (RCC) at the University of Business and Technology (UBT), Jeddah, Saudi Arabia. She was a Research Scientist at KAUST and an Associate Researcher at IEMN, Lille, France. She got her PhD from the University of Lille 1–France in Nano-Optoelectronics (Engineering) with high distinction. She is a senior member of IEEE, member of ACS, MRS, SPIE, ECS and Lebanese Engineering syndicate. She has been selected as Solar Pioneer by MESIA during WFES 2015. Her recent research interests include working on nanostructures for third generation solar cells, energy harvesting and energy storage. She is exploring new materials such as kesterite, perovskite and protein to be used as light absorber for solid state solar cells.

basma@ieee.org

Notes: