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An investigation into the dynamics of dye-sensitized solar cell for future renewable energy

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Dye-sensitized solar cell (DSSC) is a disruptive technology; it offers high efficiency, cost effectiveness and ease in manufacture compared to current photovoltaic cell technologies. The purpose of this investigation is to show that the dye-sensitized solar cell provides equivalent solution in price/performance to current technologies. DSSC which is simply "Artificial Photosynthesis", of which chlorophyll is replaced with a light absorbing dye; the molecules are excited into a high energy state by photons of light; in other words, mimicking photosynthesis in natural leaf/leaves. Its ability at capturing low light cases enables the DSSC desirable in indoor and outdoor applications, and also in smart devices. Rooftops, windows, smartphones, laptops, wearables, internet of things (IOT), etc. would all have integrated dye-sensitized solar cell for energy generation and to aide usage of devices. However, DSSC can also be easily adapted to current manufacturing practices in the battery manufacturing industry for large scale production. Also the TiO_2 used as the semi-conductor in the cell is not just easy to acquire and environmental friendly, but also cheap. Finally, although DSSC has some very few challenges in its early stage of development, the future of renewable energy calls for adaptive and flexible technologies. The DSSC delivers on majority.

Biography

Christopher Anokam is a student at Utah State University Eastern working on his Associate Degree in Science and has passion on finding ways to make humanity live better on earth through research. He has written several research proposals to the Department of Energy (DOE) under the 'Unsolicited Proposal' and with the National Renewable Energy Laboratory for cell testing. His goal is to see the world make a switch to renewable energy.

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