Presentation for PR201

on

DYE SENSITIZED SOLAR CELL USING TiO_2 NANOTUBE

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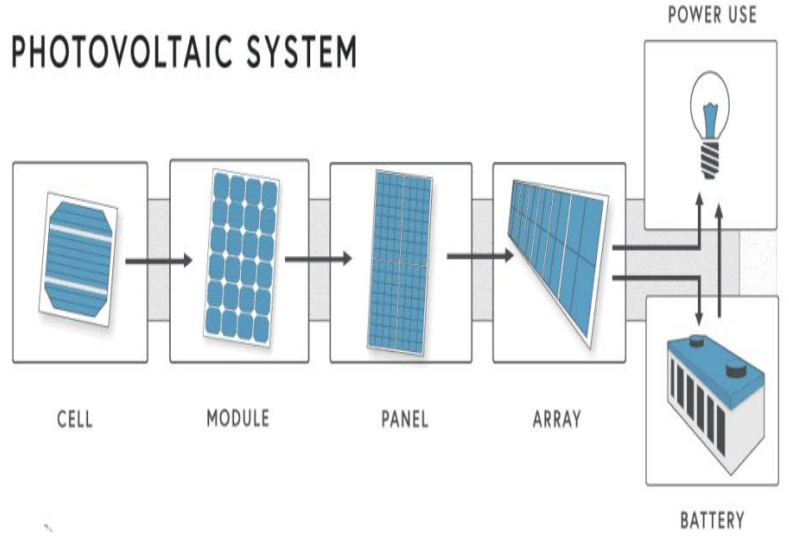
Introduction

Solar cells are devices that convert light energy into electrical energy by the photovoltaic effect.

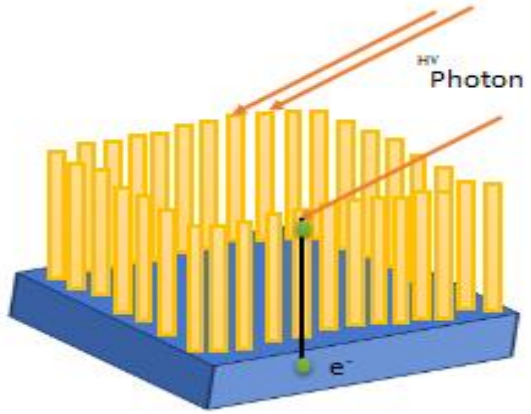
- **Silicon is an expensive semiconductor.**
- **It is not flexible**
- **Cannot be used in cloudy and windy weather conditions**
- **High cost of installation and maintenance**



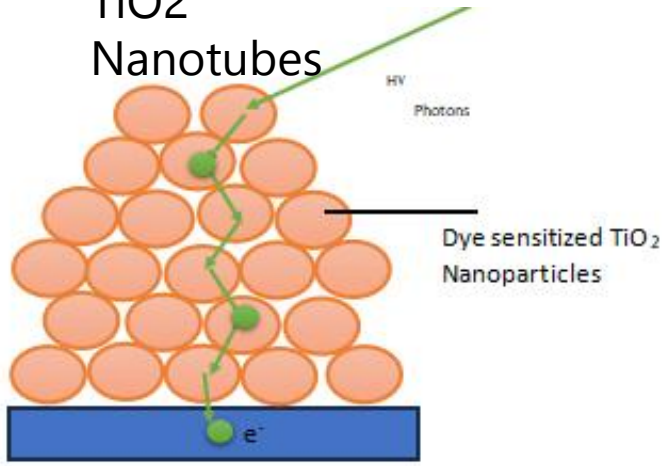
Dye-Sensitized Solar Cells (DSSCs) are a class of low-cost solar cells that belong to the group of thin-film solar cells.

TITANIUM NANOTUBES

- Titanium nanotubes are nanoscale structures
- Tubular shape
- High surface area
- Lower charge recombination rate
- Better light scattering and trapping ability
- The electrolyte that is being used is of high importance as it helps in regeneration of the dye.



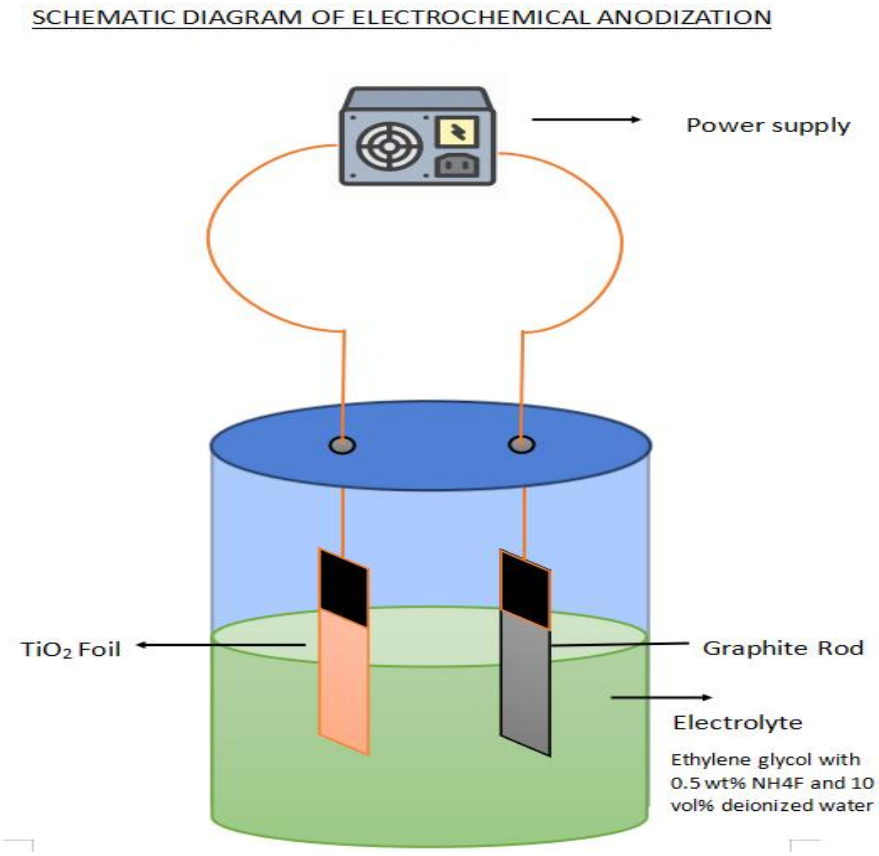
TiO2 Nanotubes



Electrochemical Anodization

Electrochemical anodization is a process that converts the surface of a metal into a durable, corrosion-resistant, decorative oxide finish.

- **High Surface Area**
- **Efficient Charge Transport**
- **Controlled Morphology**



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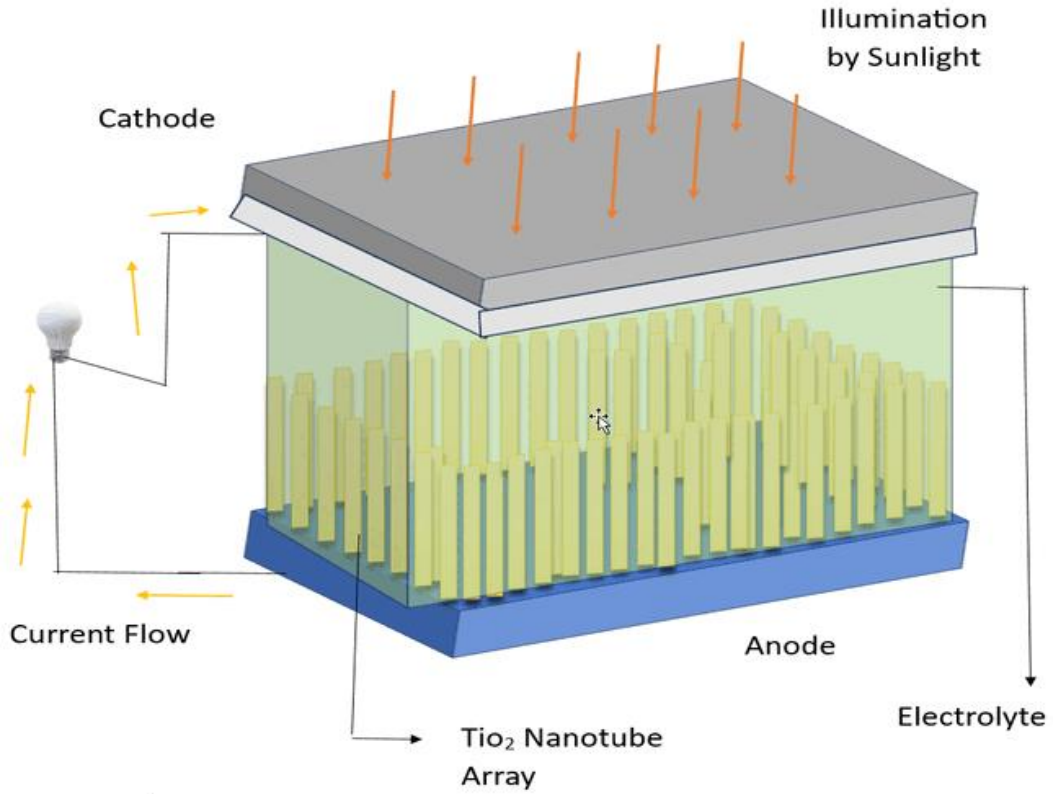
WORKING

Working of DSSC is primarly based on four process:

1. LIGHT ABSORPTIONt.
2. ELECTRON INJECTION
3. TRANSPORTATION OF CARRIER
4. COLLECTION OF CURRENT



Schematics of DSSC

RESULTS & CONCLUSION

- It is still the future of the solar industry.
- Low-cost and ease of fabrication.
- If solutions for reducing the drawbacks of dye sensitized cells are discovered, they can become more efficient with time. They might even surpass the efficiency of traditional solar cells in the upcoming years.

DYE-N-719

ELECTROLYTE PET membrane

Fabrication of Tio2 Nano Tubes (TNT)- Electrochemical Anodization method

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Thank You