

Website Information
Department of Physics
Dayananda Sagar University

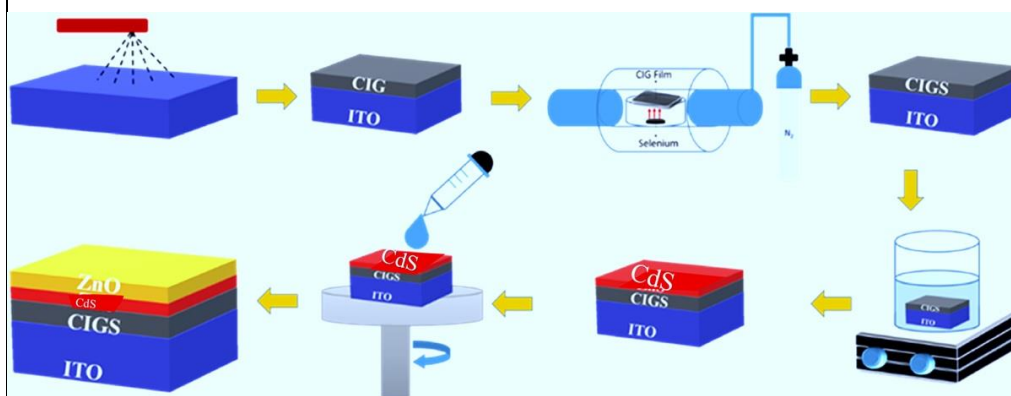
Faculty details:

Item	Details
Faculty Name:	Dr. Rajesh Cheruku
Room No:	223
Designation:	Associate Professor
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Research Area:	Lithium Ion Batteries Solar Cells Gas Sensors Materials Electromagnetic Shielding Materials
Publications (Past 5 years)	1. U. Chalapathi, P. UdayBhaskar, <u>Rajesh Cheruku</u>, S. Sambasivam, Si-Hyun Park, Evolution Evolution of large-grained CuSbS thin films by rapid sulfurization of evaporated Cu–Sb precursor stacks for photovoltaics application, Ceramic International 49 (2023) 4758–4763 ISSN: 0272-8842 2. Poornaprakasha, S.V. Prabhakar Vattikuti, K. Subramanyam, <u>Rajesh Cheruku</u>, Kamakshaiah Charyulu, Devarayapalli, Y.L. Kim, Vasudeva Reddy Minnam Reddy, Herie Park, M. Siva, Pratap Reddy, Photoluminescence and hydrogen evolution properties of ZnS:Eu quantum dots, Ceramic International 47 (2021) 28976-28984 (one of the author) ISSN: 0272-8842 3. B. Poornaprakash, K. Subramanyam, <u>Rajesh Cheruku</u>, Y.L. Kim, M. Siva Pratap Reddy, Vasudeva Reddy Minnam Reddy, Mn and Al co-doped CdS:Cr nanoparticles for spintronic applications, Materials Science in Semiconductor Processing 134 (2021) 106055 (one of the author) ISSN: 1369-8001 4. Yu Jeong Jang, Chau Thi Thanh Thuy, Suresh Thogiti, <u>Rajesh Cheruku</u>, Kwang-Soon Ahn, Jae Hong Kim, Electrochemically Deposited Polypyrrole for Counter Electrode of Quasi-Solid-State Dye-Sensitized Solar Cell, Journal of Nanoscience and Nanotechnology, 20 (2020) 546-551 (one of the author) ISSN: 1533-4880

5. Ji Hyun Lee, Yu Jeong Jang, Dong Woo Kim, **Rajesh Cheruku**, Suresh Thogiti, Kwang-Soon Ahn, Jae Hong Kim, Application of Polypyrrole/ Sodium Dodecyl Sulfate/Carbon Nanotube Counter Electrode for Solid-State Dye-Sensitized Solar Cells and Dye-Sensitized Solar Cells, Chemical Papers 73 (2019) 2749-2755 (Corresponding author) **ISSN: 0366-6352**
6. Dong Woo Kim, **Rajesh Cheruku**, Suresh Thogiti, Bong-Ki Min, Jae Hong Kim, Nanocrystalline MoO₃/Polymerized Dibromo-EDOT as Hybrid Nanocomposite: Efficient Hole Transport Material for Solid-State Dye-Sensitized Solar Cells, CHEMNANOMAT, 5 (2019) 738-747 (Corresponding author) **ISSN: 2199-692X**
7. Phuong Ho, Toi Nguyen Van, Ji Hyun Lee, Yu Jeong Jang, **Rajesh Cheruku**, Chinho Park, Kwang-Soon Ahn, Jae Hong Kim, Shape Control Iron Pyrite Synthesized by Hot Injection Method: Counter Electrode for Efficient Dye-Sensitized Solar Cells, Electronic Materials Letters, 15 (2019) 350-356 (corresponding author) **ISSN: 1738-8090**
8. **Rajesh Cheruku**, D. Surya Bhaskaram, G. Govindaraj, Lakshmi Vijayan, Nanocrystalline Li₂MoO₄: Synthesis and Electrical Studies, Journal of Alloys and Compounds, 788 (2019) 779-786 (Main author) **ISSN: 0925-8388**
9. Hyeonjun Jeong, Ramesh Kumar Chitumalla, Dong Woo Kim, S.V. Prabhakar Vattikuti, Suresh Thogiti, **Rajesh Cheruku**, Jae Hong Kim, Joonkyung Jang, Ganesh Koyyada, Jae Hak Jung, The comparative study of new carboxylated 1, 3-indanedione sensitizers with standard cyanoacetic acid dyes using co-adsorbents in dye-sensitized solar cells, Chemical Physics Letters 715 (2019) 84–90 (one of the author) **ISSN:0009-2614**
10. Chang Hee Son, Suresh Thogiti, Ramesh Kumar Chitumalla, Ganesh Koyyada, **Rajesh Cheruku**, Joonkyung Jang, Jae Hak Jung, Jae Hong Kim, Synthesis and investigation of anchoring unit effect in blue-colored isoindigo-based D–A– π –A organic dyes for dye-sensitized solar cells, Japanese Journal of Applied Physics 57 (2018) 122302 (one of the author) **ISSN:1347-4065**
11. Dong Woo Kim, **Rajesh Cheruku**, Suresh Thogiti, Ganesh Koyyada, Phuong Ho, Jae Hong Kim, The Effect of Difference Molar Ratios of Dibromo-EDOT as Hole Transporting Material for Solid State Dye-Sensitized Solar Cells, Journal of Inorganic and Organometallic Polymers and Materials 6 (2018) 2871-2874 (corresponding author) **ISSN: 1574-1443**

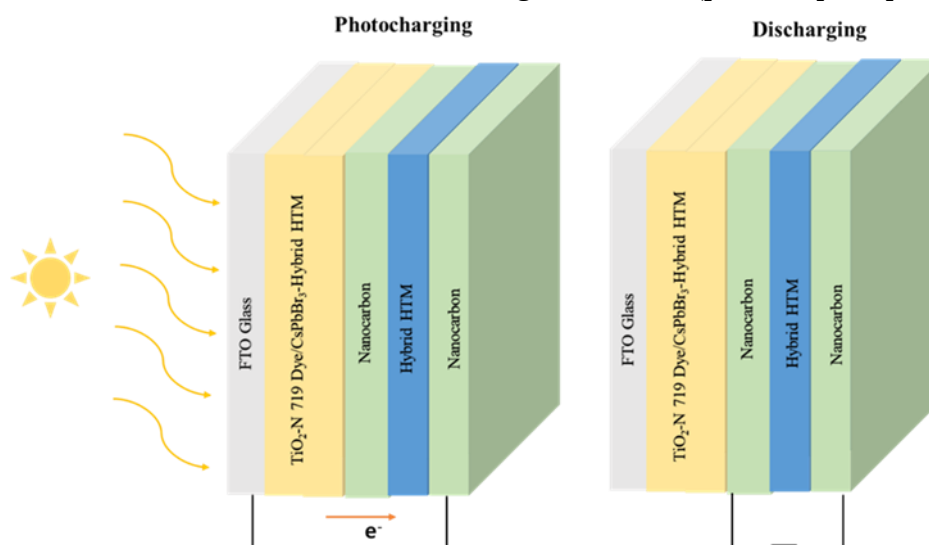
12. **Rajesh Cheruku**, D. Surya Bhaskaram, G. Govindaraj, Variable range hopping and relaxation mechanism in graphene oxide sheets containing sp^3 hybridization induced localization, Journal of Materials Science: Materials in Electronics 29 (2018) 9663-9672 (Main author) **ISSN: 0957-4522**
13. Phuong Ho, Suresh Thogiti, Le Quoc Bao, **Rajesh Cheruku**, Kwang-Soon Ahn, Jae Hong Kim, Enhanced efficiency via blocking layers at photocathode interfaces in cobalt-mediated tandem dye-sensitized solar cells, Solar Energy 161 (2018) 9–16 (one of the author) **ISSN: 0038-092X**
14. **Rajesh Cheruku**, G. Govindaraj, Lakshmi Vijayan, Electrical Relaxation, Optical and Magnetic Studies of Nanocrystalline Lithium Ferrite Synthesized by Different Chemical Routes, Materials Research Express, 4 (2017) 125008 (Main author) **ISSN: 2053-1591**
15. Le Quoc Bao, **Rajesh Cheruku**, Suresh Thogiti, Phuong Ho, Weon Ki Yang, Jae Hong Kim, Synthesis, Characterization, and Application of Metal-Free Porphyrin Dyes with Different Donors for Dye-Sensitized Solar Cells, Nanoscience and Nanotechnology Letters, 9 (2017) 1544-1560 (corresponding author) **ISSN:1941-4900**
16. Chau Thi Thanh Thuy, Dong Woo Kim, Suresh Thogiti, Hyun-Jun Jo, Jae Hong Kim, **Rajesh Cheruku**, Improved performance of dye-sensitized solar cells based on solution treated PEDOT as efficient counter electrode, Molecular Crystals and Liquid Crystals, 653 (2017) 91-98 (corresponding author) **ISSN:1542-1406**
17. Sue Kyung Kim, Phuong Ho, Ji Won Lee, So Yeon Jeon, Suresh Thogiti, **Rajesh Cheruku**, Hyun-Jun Jo, and Jae Hong Kim, Effect of electrolyte redox potentials on the photovoltaic performance in dye-sensitized solar cells based on porphyrin dye, Molecular Crystals and Liquid Crystals, 653 (2017) 84-90 (one of the author) **ISSN: 1542-1406**
18. Hyeong Jin Yun, Nguyen Thi Hai, Cho Jung Min, Suresh Thogiti, **Rajesh Cheruku**, Jae Hong Kim, Influence of Diffusion Coefficient of Cobalt Redox Mediator Using Triphenylamine Dyes with Various Number of Anchoring Groups: Photovoltaic Performance of DSSCs, Electrocatalysis, 8(5) (2017) 414-421 (corresponding author) **ISSN: 1868-2529**
19. Le Thi Thuy, Phuong Ho, Le Quoc Bao, Chau Thi Thanh Thuy, **Rajesh Cheruku**, Hyun-Jun Jo, Suresh Thogiti, Jae Hong Kim, Effect of Anchoring Group in Anthracene/Thiophene-Bridged Triphenylamine-Based Organic Dyes for Dye-Sensitized Solar Cells, Journal of Nanoscience and Nanotechnology, 17(11) (2017) 8053-8060 (one of the author) **ISSN: 1533-4880**

	20. Dong Woo Kim, Hyun-Jun Jo, Suresh Thogiti, Weon Ki Yang, <u>Rajesh Cheruku</u>, Jae Hong Kim, Fluorescent material concentration dependency: Förster resonance energy transfer in quasi-solid state DSSCs, Electronic Materials Letters, 13(3) (2017) 249-254 (corresponding author) ISSN: 1738-8090 21. Jung Min Cho, Suresh Thogiti, <u>Rajesh Cheruku</u>, Do Kyung Lee, Kwang-Soon Ahn, Jae Hong Kim, Influence of Different Electron Acceptors in Carbazole-Based Organic Sensitizers on the Performance of Dye-Sensitized Solar Cells, Journal of Nanoscience and Nanotechnology 17(5) (2017) 3316-3322 (one of the author) ISSN: 1533-4880 22. Nguyen Thi Hai, Le Quoc Bao, Suresh Thogiti, <u>Rajesh Cheruku</u>, Kwang-Soon Ahn, Jae Hong Kim, Investigation of the Effect of Different Anchoring Groups in Phenothiazine-Triphenylamine-Based Di-Anchoring Dyes for Dye-Sensitized Solar Cells, Journal of Nanoscience and Nanotechnology, 17(5) (2017) 3181-3187 (one of the author) ISSN: 1533-4880
Sponsored Projects (Past and Ongoing)	Nil
Profile Links: Scopus and Orcid	Scopus Author ID: 36909817200 https://orcid.org/0000-0003-4999-5574 Google Scholars: https://scholar.google.com/citations?user=XKebVggAAAAJ&hl=en
Research Activities (Write about your best research results max of 2-3 pages including diagrams)	1.Design and Development of Printable non-toxic ink for Flexible Solar Cells Among all recent solar cells, one of the most promising materials is doubtless the Copper Indium Gallium Selenide (CIGS) that performs very well in terms of lifetime and processability, ensuring, at the same time, high conversion efficiency. On the other hand, solar paints are more appealing because these are light weight, few nanometers in size and flexible as compared to single crystal silicon wafer solar cells which are relatively big in size, bulky and breakable. Due to the existence of these paints in solution form, it also removes the barrier of installing limited number of solar cells in a confined area for the generation of electricity.



2.Design and Fabrication of a Novel Solid-State Photo-Supercapacitor Based on the Hybrid Hole Transport Materials

The solar energy harvesting is based on (Dye-sensitized solar cells) DSSC or (Perovskite solar cells) PeSCs is a promising photovoltaic device to get an excellent conversion efficiency. Because of their excellent lowlight performance which allows their use in enclosed applications, tunable device color, and transparent cell, which is allowing for the modifying of the integrated device. In parallel, nanocarbon-based supercapacitor delivers promising performance. So, to obtain a desirable integrated device (photo-supercapacitor)



that can harvest and store the solar energy in a single cell. It can fill the gap in the area of the single solar cell harvesting and storage.

Collaborations	
Invited Talks	
Group Members (PhD Students and Projects) Open Positions: If any	