



2nd International Symposium on Sustainable Energy and Technological Advancements

National Institute of Technology, Meghalaya (NITM) , Date: 24th -25th Feb'2023

A Special Session on

Application of Photovoltaic in multidisciplinary sectors

Aims and scope:

Photovoltaic defines the conversion of sun light into electrical energy by the help of semiconductor material and the effect is called photovoltaic. There is a wide variety of solar modules on the market to achieve the photovoltaic effect. Different types of photovoltaic Solar modules are utilized all around the world. The photovoltaic-generated power is utilized by both rural and urban users. Most of their applications are in power systems, power electronics systems, agriculture, green construction, and other interdisciplinary fields. A grid-connected photovoltaic system boosts the generating efficiency. Grid-connected PV system faces obstacles include power quality concerns, grid operational issues, economic issues, and design challenges. Such problems can be resolved with the use of intelligent techniques and tools like Machine learning, Internet of Things and many more. Grid-connected photovoltaic energy relies on power electronics devices (ac-dc, dc-ac, and dc-dc converters) to improve their power efficiency. In addition to the use of photovoltaics to generate energy on the rooftops of buildings and the development of environmentally friendly structures. Today, photovoltaics is employed in farm systems to pump water, heat water, and for other purposes. Solar photovoltaic (PV) panels may be built inside car sunroofs to either fully power the vehicle or to charge the batteries very slowly. The main advantage of photovoltaic system has acted as an alternate power source. It does not create any pollution. Therefore, this special session primarily focuses on the applications of photovoltaic in all societal sectors.

Subtopics:

This special session calls research papers from the following topics (but not limited) to recognize the practical implications of photovoltaic systems in multidisciplinary areas.

1. Design & Construction of Photovoltaic solar cell
2. Photovoltaic application in grid connected system (off grid / on grid/ standalone).
3. Challenges in integration of photovoltaic into other renewable energy sources
4. Power electronics device Control (DC-DC/DC-AC/Synchronization) techniques with Photovoltaic system.
5. Intelligent techniques and tools in the photovoltaic systems.
6. Application of photovoltaic into green building
7. Combined photovoltaic and agricultural system

8. Photovoltaic application in transportation
9. Application of solar photovoltaic system in Industry

Special Session Organizer 1

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Dr. Amruta Pattnaik is an assistant professor in the Electrical and Electronics Engineering department of the Dr. Akhilesh Das Gupta Institute of Technology and Management in Delhi. She has been an educator for almost a decade. Nanomaterial synthesis and characterization, solar cell device implementation and characterization, hetero-junction solar cell characterization, optical study of materials using CASTEP software, power electronics circuit design using MATLAB/Simulink, study of c-Si solar cells using PC1D software and PV -lighthouse, statistical analysis of experiments; these are just some of the skills she possesses. Among her many roles, she has been a project coordinator and the GGSIP university subject coordinator, as well as a teacher of various electrical and electronics engineering courses. She has also contributed to academic journals including Elsevier, Sage, Springer, Taylor & Francis, etc., which are indexed by the SCI and Web of Science. She also serves as a reviewer for numerous international journals and conferences/symposia, including the Bentham Science Journal and Clean Technologies and Environmental Policy. In addition, she is the editor of a book published by the Bentham Science Press titled "Futuristic Projects in the Energy and Automation Sectors: A Brief Review of New Technologies Driving Sustainable Development."

Special Session Organizer 2

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Dr. Anuradha Tomar has 12 years of experience in research and academics. She is currently working as Assistant Professor in Instrumentation & Control Engineering Division of Netaji Subhas University, Delhi, India. Dr. Tomar has completed her Postdoctoral research in Electrical Energy Systems Group, from Eindhoven University of Technology (TU/e), the Netherlands and has successfully completed European Commission's Horizon 2020, UNITED GRID and UNICORN TKI Urban Research projects. She has received her B.E Degree in Electronics Instrumentation & Control with Honours in the year 2007 from University of Rajasthan, India. In the year 2009, she has completed her M.Tech Degree with Honours in Power System from National Institute of Technology Hamirpur. She has received her Ph. D in Electrical Engineering, from Indian Institute of Technology Delhi (IITD). Dr. Anuradha Tomar has committed her research work efforts towards the development of sustainable, energy efficient solutions for the empowerment of society, humankind. Her areas of research interest are Operation & Control of Microgrids, Photovoltaic Systems, Renewable Energy based Rural Electrification, Congestion

Management in LV Distribution Systems, Artificial Intelligent & Machine Learning Applications in Power System, Energy conservation and Automation. She has authored or co-authored 69 research/review papers in various reputed International, National Journals, and Conferences. She is an Editor for books with International Publication like Springer, Elsevier. Her research interests include photovoltaic systems, microgrids, energy conservation, and automation. She has also filled seven Indian patents on her name. Dr. Tomar is Senior member of IEEE, Life member of ISTE, IETE, IEI, and IAENG.