International Conference on Intelligent Controller and Computing for Smart Power, 2022
July 21st -23rd, 2022 !! Hyderabad, India
Sreenidhi Institute of Science and Technology, Hyderabad, India

ICICCSP 2022 Special Sessions
on

"Title of the special session"

Challenges in Power, Energy, Control, and Stability of Renewables Integrated Microgrid System

1. Aims & Scope of the Session:

Microgrid technology is an advanced technology developed in recent years as a critical competence of traditional power networks with reliable and efficient operation across a wide range of applications. The ability to deliver the technical information of microgrids to the right audience at the right time is a valuable skill, especially for those engaged in the field of power systems. Renewable sources of energies are often placed into a microgrid, a local electricity distribution system that is operated in a controlled way and includes both electricity users and renewable electricity generation. This special session deals with different topologies of microgrids and covers a wide range of topics, from basic definitions, through modelling, control, stability and power management issues of microgrids. The aim of this session is to know various concepts related to microgrid technology and implementation, such as smart grid and virtual power plant, types of distribution network, markets, control strategies and components. Among the components special attention is given to operation and control of power electronics interfaces. One will familiarize with the advantages and challenges of microgrids.

2. Topics of interest include, but are not limited to:

- Microgrid System Design and control
- Distributed Generating System integration
- Power Electronic Control Design for Microgrid
- Solar irradiance forecasting for addressing intermittency issues
- Control of distributed Active Power Filter and STATCOMs in smart power network
- Power quality improvement in grid connected Renewable systems
- Design of Electric Vehicle Charging System for a Renewable sources integrated micro-grid
- Power management and control in a PV, EV, battery and super capacitor integrated Microgrid
- Supply and Demand side energy management in Microgrid
- Cyber-security of microgrid
- Microgrid protection
- Control and Stability analysis of Renewables integrated Microgrid
- Applications of IoT in Microgrid

3. Special Session Organizers:

Name: Dr. Pravat Kumar Ray, Associate Professor
Dr. Arnab Ghosh, Assistant Professor
Institution: Department of Electrical Engineering**,** National Institution of Technology Rourkela, India

4. Special Session Organizers

Pravat Kumar Ray (SM'18) received his Bachelor degree in Electrical Engineering from Indira Gandhi Institute of Technology, Sarang, India in 2000, ME in Electrical Engineering from Indian Institute of Engineering Science and Technology, Shibpur, West Bengal, India in 2003 and PhD in Electrical Engineering from National Institute of Technology (NIT), Rourkela, India in 2011. He was also a Postdoctoral Fellow at Nanyang Technological University, Singapore during January 2016 to June 2017. Dr. Ray is presently working as an Associate Professor in the Department of Electrical Engineering at, NIT Rourkela, India. He has published around 60 papers in reputed journals and over 70 proceedings of international conferences. He has supervised 10 PhD theses to successful completion and currently supervising 8 PhD Scholars. He has collaboration with several foreign universities through bilateral and multilateral international research grants. His research interests include system identification, signal processing and soft computing applications to power system, power quality, energy management in microgrid, solar irradiance forecasting and grid integration of EVs and renewable energy systems.

Arnab Ghosh (SM'19) is working as an Assistant Professor and associated with Centre of Excellence (CoE) on Renewable Energy Systems at the Department of Electrical Engineering at National Institute of Technology Rourkela. He has been actively involved in research on different control and design power electronic converter for renewable power generations. He is an IEEE Senior Member. He is also Chartered Engineer. Currently, he is associated with four esteemed projects. Recently, he has received "Young Scientist & Technologist" award form DST, Govt. of India. He is author of more than Forty (40) research publications in international journals and conferences of repute. His research interest includes the design of charging station for EVs, control of nanogrid/ microgrid/ smartgrid, switch-mode power converters, nonlinear dynamics of switching converters, machine drives, etc. Dr. Ghosh is also supervising UG, PG, and PhD students in the domain of design of power electronics converters and controls for Smart grid and Hybrid Microgrid.