

International Conference on Energy, Power and Environment

(Towards Clean Energy Technologies)

September 04 – 06, 2020
National Institute of Technology Meghalaya, Shillong, India



ICEPE 2020

ICEPE 2020 Special Session (SS-07)

1. Title of the special session

Stability and Protection of Power Systems in Smart Grids

2. Aims & Scope of the Session:

In the 21st century Smart Grid and Renewable Energy technologies are an important issue with regards to global climate change problem and energy security. The evolution of current conventional or centralized generation in form of distributed generation and Smart Power Grid (SPG) has great opportunity and potentially can eradicate several issues associated with energy efficiency, energy security and the drawback of aging power system infrastructures. In order to meet the rising electrical power demand and increasing service quality as well as reducing pollution, the existing power grid infrastructure should be developed into Smart Grid (SG) that is flexible for interconnectivity with the distributed generation. However, integrating distributed generation to power system causes several technical issues especially system monitoring, stability, protection and control. Therefore, the focus of this session would be towards the methodologies/technologies assisting in the monitoring, protection, stability and control of power system in the smart grid environment under different operating scenarios.

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

- Security monitoring and contingency analysis
- Power system stability monitoring
- Power quality monitoring
- Power oscillation monitoring
- State estimation
- Islanding detection of microgrids
- Power theft detection
- Intelligent monitoring system
- Wide-area monitoring
- Fault detection in transmission lines
- Protection challenges
- Power management
- Voltage and frequency control
- Security analysis
- Optimal power flow analysis
- Cyber attack and power system restoration

4. Special Session Organizers:

1. **Dr. Soumya Ranjan Mohanty**

Associate Professor, Department of Electrical Engineering,
Indian Institute of Technology (IIT),
Banaras Hindu University (BHU), Varanasi, Uttar Pradesh, India,
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Dr. Soumya R. Mohanty (SM'12) received the PhD degree in the year 2007 from Department Of Electrical Engineering, Indian Institute of Technology (IIT) Kharagpur, India. He is presently working as Associate Professor with the Department of Electrical Engineering, Indian Institute of Technology (BHU), Varanasi. Prior to joining at IIT BHU, he had served more than 10 years as Assistant Professor in the Department of Electrical Engineering, Motilal Nehru National Institute of Technology (MNNIT) Allahabad, India. He also worked as Postdoctoral Fellow at University of Beira Interior, Portugal and International Research collaboration as Short Research Exchange Program under Science Foundation (SFI-ISCA) with Dublin Institute Of Technology Ireland.

His research area includes Digital Signal Processing applications in Power System Relaying and Power Quality, Disturbance detection and classification, Robust Control scheme for Load-Frequency Regulation in hybrid distributed generation based power system and Microgrid, Wide area Monitoring and Control in large scale power network. He has already published more than 35 papers with international journal of reposes and few papers in pipeline out of the research guidance of Doctoral and Master Students and also ongoing projects with Department of Science and Technology India.

2. **Dr. Prakash Kumar Ray**

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Dr. Prakash K. Ray is currently working as an Associate Professor in the Department of Electrical Engineering, CET, Bhubaneswar, India. He completed his PhD degree from MNNIT, Allahabad, India in 2012 and Post Doctoral Fellowship from Nanyang Technological University (NTU), Singapore in 2018.

He is a Senior Member of IEEE and Life Member of Indian Society for Technical Education (ISTE). His research area includes distributed generations, digital signal processing and soft computing applications in power system and power quality. He has published more than 100 technical papers in International Conferences and Referred Journals.