

International Conference on Energy, Power and Environment (Towards Clean Energy Technologies)

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National Institute of Technology Meghalaya, Shillong, India



ICEPE 2020

ICEPE 2020 Special Session (SS-16)

1. Title of the special session

Application of State and Parameter Estimation Techniques in Power Systems

2. Aims & Scope of the Session:

State and parameter estimation techniques play a significant role in system identification, mathematical modeling and replace the costly sensors in developing the control law for physical systems. While parameter estimation aims to determine the unknown system parameters which are constant or varying with time or with environmental conditions, state estimation provides information of the states to replace costly sensors or the states which cannot be measured physically. State estimation is also important in creating analytical redundancy in fault detection and identification. This track intends to explore the applications of state and parameter estimation techniques for power systems. State estimation plays a significant role in Energy Management System. By the state estimation techniques the operating state of the power system can be accurately estimated to make decisions for maintaining the security. Dynamic state estimation is important for the modeling of renewable energy based generators, such as, wind turbines, solar cell etc. State estimation is also an important task towards the improvement of power quality by estimating the harmonics present in the power signal. The examples referred above are few possible applications of state estimation techniques in power system. This track aims to investigate the applicability of improved estimation strategies for such problems and looks for other nontrivial applications of estimation theory in power systems.

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

- Power system dynamic state estimation based on SCADA and PMU measurements
- Dynamic state estimation techniques applied on renewable energy based generators
- Smart grid state estimation
- Estimation of power system network parameters
- Mathematical modeling of components used in power system
- Power system harmonics estimation
- State of health, state of charge estimation of Lithium ion batteries

4. Special Session Organizers:

Dr. Aritro Dey
Assistant Professor, Department of Electrical Engineering
National Institute of Technology, Durgapur,
Durgapur-713209, West Bengal
Contact No: +91 89715 97360
E-mail: aritra.dey@ee.nitdgp.ac.in

Dr. Aritro Dey is currently working as an assistant professor at Department of Electrical Engineering, National Institute of Technology, Durgapur. His broad research interest lies in state and parameter estimation of dynamic systems, robust control with aerospace applications. He received the Ph.D. degree in Electrical Engineering from Jadavpur University, Kolkata, India in 2017. He received the degree of Master of Electrical Engineering and Bachelor of Electrical Engineering from Jadavpur University in 2011 and 2008 respectively. He has also worked as Scientist/Engineer 'C' at National Control Law team, Ministry of Defence, Bangalore, India from 2015 to 2018. Since 2018 he is working as a faculty member in NIT, Durgapur.