

Workshop Proposal Form PEDSTC2018

AMIRKABIR UNIVERSITY OF TECHNOLOGY
(TEHRAN POLYTECHNIC)



Multifunctional Smart Inverters for Power Quality Improvement in Microgrids

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Mehdi Savaghebi (S'06-M'15-SM'15) was born in Karaj, Iran, in 1983. He received the B.Sc. degree from University of Tehran, Iran, in 2004 and the M.Sc. and Ph.D. degrees with highest honors from Iran University of Science and Technology, Tehran, Iran in 2006 and 2012, respectively, all in Electrical Engineering. From 2007 to 2014, he was a Lecturer in Electrical Engineering Department, Karaj Branch, Islamic Azad University where he taught various courses and conducted research on power systems and electrical machines. In 2010, he was a visiting Ph.D. Student with the Department of Energy Technology, Aalborg University, Aalborg, Denmark and with the Department of Automatic Control Systems and Computer Engineering, Technical University of Catalonia, Barcelona, Spain.

Currently, he is an Associate Professor in the Department of Energy Technology, Aalborg University. His main research interests include distributed generation systems, microgrids, power quality, Internet of Things (IoT) and smart metering. Dr. Savaghebi has been a Guest Editor of Special Issue on Power Quality in Smart Grids, IEEE Transactions on Smart Grid. He is a member of Technical Committee of Renewable Energy Systems, IEEE Industrial Electronics Society and also IEEE Task Force on Microgrids Stability Analysis and Modeling.

Seyyed Yousef Mousazadeh Mousavi was born in Babol, Iran, in 1987. He received the B.Sc. degree from Mazandaran University (Babol University of Technology), Iran, with highest honors in 2010 and the M.Sc. degree from Amirkabir University of Technology in 2012 all in Electrical Engineering. Currently, he is Ph.D. student at Iran University of Science and Technology. From 2013 to 2014, he was a Lecturer in this University.

In 2016, he was a visiting Ph.D. Student with the Department of Energy Technology, Aalborg University, Aalborg, Denmark. His main research interests include power electronics, distributed generation systems, microgrids and power quality.

Main topics: The interest of using multifunctional DG interfacing inverters for power quality improvement has been increased. By using these inverters not only the power generated by DG units can be injected to the grid, but also they can contribute in power quality improvement.

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Description:

- ✓ Overview of PQ issues in MGs
- ✓ Multifunctional inverter introduction
- ✓ Control schemes for voltage harmonics and unbalance compensation
 - ✓ Simulation and experimental analysis will be presented

Minimum and maximum expected number of participants: Min: 20 Max: 100
Expected Time (2 hours)

Why your topic is interesting for participants :

The use of distributed generation (DG) units has been increased due to extinction and pollution of fossil fuels. Usually DG units are integrated to the grids by using DC/AC inverters. On the other hand, the proliferation of different nonlinear and single-phase loads in electrical systems has resulted in PQ problems such as voltage harmonic and unbalance. In this workshop the basic control methods of these inverters will be presented; furthermore, the power quality improvement function of the will be presented.

What background participants should have (briefly explain)?
General background about power electronics converters.

Please attach your CV, maximum in 4 pages, and additional information about the topic (if it is necessary)