

Electric Power and Power Electronics Institute

INVITED SEMINAR

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TITLE

Evaluation of the Power Quality Indices using Probabilistic Techniques

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Abstract

Distribution Power System performance assessment is usually based on continuity indicators and power quality measurements. Generally, these evaluations are performed using distinct mechanisms, where continuity is assessed by past network performance observations and/or predicted simulation, whereas power quality is evaluated using electronic measurements. In fact, the concepts of reliability and power quality are mainly dissociated, when distribution power system performance is assessed. However, the current diversity of loads and sources, with more sensitivity to voltage variations, requires a wider ranging of power system tools, which consider aspects of both continuity and power quality effects. Aiming for a distribution systems performance approach that considers both reliability and power quality issues into a unique evaluation framework, aspects related to the systems voltage as well as distorting phenomena affecting the voltage waveform need to be modeled. This talk is about a proposal to include a short-circuit model into a sequential Monte Carlo algorithm in order to assess power quality indices through estimates. The proposed methodology is applied to the IEEE test feeder with 34 nodes.

Speakers Bio

Mauro Augusto da Rosa was born in 1969 in Porto Alegre, Brazil. He received the B.Sc. and M.Sc. degrees from the Catholic University of Rio Grande do Sul (PUCRS), Porto Alegre, Brazil, in 1998 and 2003, respectively, all in Electrical Engineering. He worked at the FENG – Faculty of Engineering of PUCRS, as a lecturer until 2005. From 1999 to 2004, he also worked as planning engineer from RGE – Rio Grande Energia (Distribution System Company), in Brazil. During this period, he received another postgraduate degree from the Mackenzie University in São Paulo, Brazil, as a distribution system planning specialist. From 2005 to 2009, he worked with INESC Porto, Porto, Portugal. He received the Ph.D. degree from FEUP – Faculty of Engineering of Porto University in 2010 in Electrical and Computer Engineering. It was awarded the title of European Ph.D. by Porto University. From 2010 to 2013, he also was a Senior Researcher at INESC Porto with Power Systems Unit, and dedicates some hours as invited assistance professor on Faculty of Engineering of Porto University. Since 2013, he is a professor at Federal University of Santa Catarina (UFSC) in the Power System Area. Currently, he is with LABPLAN, where he has developed his research interests which include distributed artificial intelligence, intelligent agents, and power system reliability. Additionally, he is a Director of Science and Technology of INESC P&D Brazil.