



IEEE

**Ottawa
Section**



**Seminar by IEEE Ottawa IMS, PES, and RS&PEL Joint Chapters, Ottawa Educational Activities,
and
Algonquin College IEEE Student Branch**

*The IEEE Ottawa Section is inviting all interested IEEE members and prospective members to a seminar
on*

***Interoperability and Interference in Modern Railway Systems
and its Instrumentation & Measurement Implications***

By

Dr. Andrea Mariscotti, Professor, University of Genova, Italy

DATE: Friday, October 05, 2012.

TIME: Refreshments, Registration and Networking: 18:30; Seminar: 19:00 – 20:30

PLACE: [Algonquin College, P-Building](#), Room P210, 1385 Woodroffe Ave., Ottawa.

PARKING: No fee after 5 p.m. at the Parking Lots 8 & 9. Please respect restricted areas.

Abstract

The seminar will provide a review of the architecture and elements of an electrified transportation system, including: AC distribution and connection to the high voltage primary network, substations and other machines (transformers), traction line and its characteristics (imperfections, frequency response, etc.), trains and vehicles as moving, time varying, highly distorting loads. Power Quality phenomena will be covered: definitions and relationships with similar phenomena in the industrial sector: harmonics, inter-harmonics, flicker, voltage fluctuations, transients, stability of the fundamental frequency; applicable standards and requirements; methods for measurement and evaluation. Other relevant phenomena, such as interference with safety apparatus (signalling and telecommunications); applicable standards and requirements, evolution of the European harmonization standards; methods for measurement and evaluation will be addressed as well. Measurement systems and processing methods will be discussed, including probes and acquisition systems, their measurement performance, requisites, utilization criteria; examples of algorithms and results: i) stability of the fundamental frequency, ii) spectra of transients, iii) time varying harmonics and their tracking, iv) assessment and certification of rolling stock or single power converters; challenges and perspectives for measurements in the transportation field: i) wireless instrumentation, ii) networking of sensors, iii) need for unusual performances and functionalities.

Andrea Mariscotti's Bio

Andrea Mariscotti (M95) received his degree in Electronics Engineering in 1991 and Ph.D. in Electrical Engineering in 1997 from the University of Genova. Between 1998 and 2004, he worked as a tenure researcher in national and international research programs. In 2005, he became an Assistant Professor at the former Electrical Engineering Department of the University of Genova. His main research interests are EMC applied to industrial, military and transportation systems, modelling and measurement of electromagnetic interference, its relevance to safety and availability, and the design and construction of measurement instruments. He currently teaches courses in Electronic Circuits and Signal Processing, and gives lectures and seminars on EMC and applied measurements for companies and agencies in the industrial and military sectors. He is a Member of the IEEE Instrumentation and Measurement Society and of the Italian Electrical and Electronic Measurement Group (GMEE). He serves as a reviewer for IEEE Transactions, Elsevier, the Institute of Physics, and Springer. He is a registered professional engineer in the province of Genova.

Admission: Complimentary. Registration required.

Please register by e-mail contacting: branislav@ieee.org almuhtadi@ieee.org or raedabdullah@ieee.org