

IET Toronto Local Network Younger Members Section

IEEE Hamilton Section – Power Chapter

Technical presentation on:

Stabilization of Standalone Microgrids: Application to More Electric Aircraft

Date: 17th September 2015

Time: Presentation starts at 18:00 for approx. 1 hour

Speaker: Dr. Babak Nahid-Mobarakeh

Associate Professor, Institut National Polytechnique (Lorraine INP)
University of Lorraine, France

Abstract—On-board energy management in small optimized microgrids is an important issue in the next generation of electrified transportation systems. On one hand, design engineers are looking for minimizing the size and weight of power systems and the passive components. Inductors and capacitors are a part of the first elements that should be reduced. On the other hand, it is known that unstable oscillations on the microgrid may appear under overload conditions when small capacitances are used. This seminar focuses at first on the stability analysis of interconnected power converters in a microgrid. Linear and nonlinear tools will be presented and applied to a DC microgrid developed for a transportation system. This practical example allows attendees to derive the relationship between the stability (small and large signal) and the passive components of the system. Then, the same microgrid will be stabilized using passive and active stabilizers. Discussions on how each stabilizer improves the stability margins of the system will conclude the seminar.



Short Biography—Dr. Babak Nahid-Mobarakeh is a "Maître de Conférences HDR" (Associate Professor) at "Université de Lorraine", Nancy, France. He received the Ph.D. degree from "Institut National Polytechnique de Lorraine" (INPL, France) in 2001 in electrical engineering. From 2001 to 2006, he was with "Université de Picardie" as an Assistant Professor. In September 2006, he joined GREEN Lab. at "Université de Lorraine". He is a Senior Member of IEEE and author or coauthor of more than 100 international journal and conference papers. Currently, he is a Paper Review Chair of IEEE Transactions on Industry Applications and an Associate Editor of IEEE Transactions on Transportation Electrification.

The Venue

Room: **MARC – 266**

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Attendance

Attendance is free, but please confirm in advance via email to Prof. Nigel Schofield at:
nigels@mcmaster.ca