Graz University of Technology

Institut für
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DVR: 008 1833 UID: ATU 574 77 929

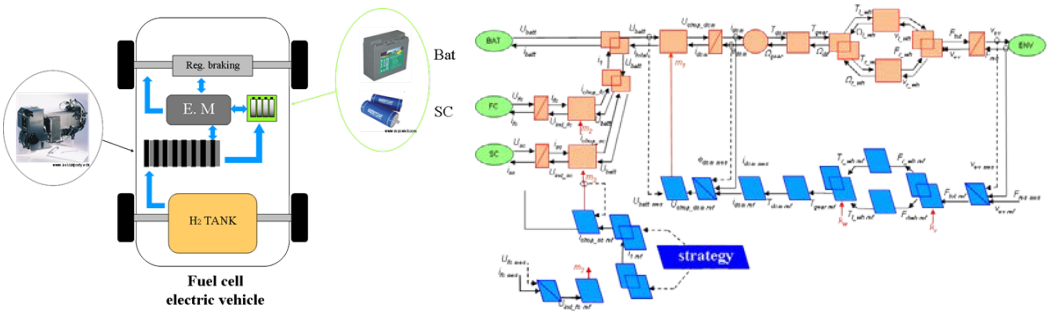
Gastvortrag

EMR an inversion-based control of a fuel-cell vehicle

Dr. Lucia GAUCHIA (Carlos III University Madrid)

Freitag, 20. April 2012, 10:30h

A hybrid storage system is studied for a Fuel-Cell system: electrochemical batteries and supercapacitors are used in order to increase the efficiency of the Fuel Cell and to recover energy. The EMR and inversion-based control of this complex system have been developed to ensure an efficient energy management. Simulation and experimental results will be provided.



Lucia GAUCHIA received both the Dipl.-Ing. degree in industrial engineering and the M.Sc from the Carlos III University in Madrid, Spain in 2005 and 2007. She obtained the PhD degree in electrical engineering in 2009, also from the Carlos III University. From 2006 to 2010, she was a lecturer at the Electrical Engineering Department at Carlos III University, where she is now an Assistant Professor. In 2011, she was a visiting professor at University Lille1 on the energy management of Hybrid Energy Storage Systems for Fuel Cell Vehicle.
Dr. Gauchia's research interests are hybrid vehicles, with special emphasis on energy storage systems such as batteries and supercapacitors, as well as fuel cells and its energy management. She will organize the next EMR summer school in Madrid in June 2012.

More information about EMR: http://emr.univ-lille1.fr/

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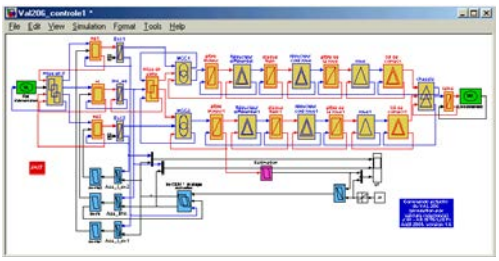
Gastvortrag

EMR an inversion-based control of a supercapacitor-based elevator

Dr. Philippe BARRADE (EPF Lausanne)

Freitag, 20. April 2012, 9:30h

Elevators are naturally kinetic and potential energy accumulators. One goal of elevator manufacturers today is to lower the power impact of such accumulators on the feeding grid. Another goal is to increase the global efficiency of such systems. Using additional accumulators in elevators is an answer to these new requirements. But one has then to control complex energy flows in a complex system, where the accuracy of the control impacts directly on the sizing of the various elements. The EMR and inversion-based control are there efficient tools to solve these issues.



Philippe BARRADE received the Ph.D. degree in Electrical Engineering from INP, Toulouse, France in 1997. In 1998, he worked at SAFT, in the field of power electronics and energy management for UPS applications. Since 1999, he has been First Assistant, Lecturer at Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland. His main research fields are power electronics applications, energy management and storage, including multiphysics finite element analysis in the LEI (Laboratoire d'Electronique Industrielle). Dr. Barrade organized the EMR 2011 summer school in Lausanne, July 2011.