SYMPOSIUM ES12

Soft Magnetic Materials for Next-Generation Power Electronics
April 19 - April 20, 2017

Symposium Organizers
Enzo Ferrara, Istituto Nazionale di Ricerca Metrologica
Todd C. Monson, Sandia National Laboratories
Mitra Taheri, Drexel University
Torbjorn Thiringer, Chalmers University of Technology

Symposium Support
U.S. Department of Energy-Office of Electricity Delivery and Energy Reliability
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Proceedings Statement
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* Invited Paper

SESSION ES12.1: Soft Magnetic Materials for Next-Generation Power Electronics I
Session Chairs: Enzo Ferrara and Todd C. Monson
Wednesday Morning, April 19, 2017
PCC North, 200 Level, Room 227 C

9:00 AM *ES12.1.01
Enabling Wide Band Gap Devices Based Power Converters Applications by High Frequency Magnetics Subhashish Bhattacharya; North Carolina State University, United States.

9:30 AM ES12.1.02
Novel Bulk Metallic Glass, Fe-Co-Si-B-P, with Good Soft Magnetic Properties and High Glass Forming Ability Michael Floyd; California Institute of Technology, United States.

9:45 AM BREAK

10:15 AM *ES12.1.03
Advanced Soft Magnetic Materials for High Power Density, High Efficiency Electrical Systems Francis Johnson; GE Global Research, United States.

10:45 AM *ES12.1.04
Nanococrystalline/Amorphous Nanocomposite Based Alloy and Core Development and Integration in Soft Magnetics for Emerging Wide Bandgap Power Electronics Based Converters Paul R. Ohodnicki[1, 2]; [1]National Energy Tech Laboratory, United States; [2]Carnegie Mellon University, United States.

SESSION ES12.2: Soft Magnetic Materials for Next-Generation Power Electronics II
Session Chairs: Paul Ohodnicki and Mitra Taheri
Wednesday Afternoon, April 19, 2017
PCC North, 200 Level, Room 227 C

1:30 PM *ES12.2.01
Development of New Amorphous and Nanocrystalline Magnetic Materials for Use in Energy-Efficient Devices Eric Theisen; Metglas, United States.

2:00 PM ES12.2.02
Tuning the High Frequency Behavior of a Nanocomposite Inductor Dale L. Huber; Sandia National Laboratories, United States.

2:15 PM ES12.2.03
Magnetic Hybrid Nanocrystalline Materials for Power Electronics Shenqiang Ren; Temple University, United States.

2:30 PM BREAK

3:30 PM ES12.2.04
Broadband Magnetic Behavior of Nano-Crystalline Alloys and Soft Ferrites Enzo Ferrara; Istituto Nazionale di Ricerca Metrologica, Italy.

3:45 PM ES12.2.05
Amorphous Soft Magnetic Core for the Stator of the Electric Motor Marcin T. Karpinski; Institute of Non Ferrous Metals, Poland.

4:00 PM *ES12.2.06
Novel Soft Magnetic Materials for Energy-Efficient Electric Motors Josefina M. Silveyra[1, 2]; [1]Universidad de Buenos Aires, Argentina; [2]CONICET, Argentina.

4:30 PM ES12.2.07
Nanoscale-Enabled Microinductors for Power Electronics Eric D. Langlois; Sandia National Laboratories, United States.

4:45 PM ES12.2.08
Amorphous Magnetic Thin Films and Their Integration in On-Chip Power Conversion Applications Hongbin Yu; Arizona State University, United States.

SESSION ES12.3: Poster Session: Soft Magnetic Materials for Next-Generation Power Electronics
Session Chairs: Enzo Ferrara and Todd C. Monson
Wednesday Afternoon, April 19, 2017
8:00 PM - 10:00 PM
Sheraton, Third Level, Phoenix Ballroom

ES12.3.01
Structural and Magnetic Properties of CO_2MnAl Alloys Prepared by Mechanical Alloying Chunghyo Lee; Mokpo National University, Korea (the Republic of).

ES12.3.02
Novel Rapid-Quenched Soft Magnetic Amorphous Thin Film Materials Using High Glass Forming Elements for Ultra-Low Electrical Losses Ansar Masood; Tyndall National Institute, Ireland.

ES12.3.03
Laser Annealing of AeroJet-Printed NiZn-Ferrite Films and Embedding into Plastic Substrate for Flexible Electronics Rajaram Kaveti; Kongju National University, Korea (the Republic of).

ES12.3.04
Studies on Magnetic Properties of Fe-N Nanopowder Prepared by Plasma Arc Discharge Kiran P. Shinde; Korea Institute of Material Science, Korea (the Republic of).

SESSION ES12.4: Soft Magnetic Materials for Next-Generation Power Electronics III
Session Chairs: Eric Langlois and Todd C. Monson
Thursday Morning, April 20, 2017
PCC North, 200 Level, Room 227 C

9:00 AM *ES12.4.01
Development of Soft Magnetic Nanomaterials Raju V. Ramanujan; Nanyang Technological University, Singapore.

9:30 AM ES12.4.02
Mechanochemical Synthesis and Characterization of Nanocrystalline Iron Nitride Baolong Zheng; University of California, Irvine, United States.

9:45 AM ES12.4.03
Scalable Synthesis and Fabrication of a Soft Magnetic Nanocomposite John Watt; Sandia National Laboratories, United States.

10:00 AM BREAK

10:30 AM *ES12.4.04
Magnetic and Electrical Characterization of Nickel-Rich NiFe Thin Films and Nanotubes Synthesized by ALD Juan Escrig; Universidad de Santiago de Chile, Chile.

11:00 AM ES12.4.05
Embedment of All-Inkjet-Printed Inductor/NiZn-Ferrite Structure into Plastic Substrate for Flexible Wireless Power Transfer Module Murali Bissannagari; Kongju National University, Korea (the Republic of).

11:15 AM ES12.4.06
Dynamic Magnetic Properties of Ferrites Prepared by Sol-Gel Autocombustion Method Marco Coisson; INRIM, Italy.