

Presents the Fall 2013 EECS Seminar Series

Dr. Bulent Sarlioglu

College of Engineering — University of Wisconsin-Madison

“Increasing Power Density and Efficiency of Power Electronic Converters using Wide Bandgap Semiconductors for Electrification of Vehicles”

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ABSTRACT

Power electronic converters are critical part of many applications including electric/hybrid vehicles, renewable energy systems, aerospace, and industrial drives. There is a need for better efficiency, higher power density, greater reliability, and higher thermal capabilities from these converters. The advantageous properties, such as high critical field, high electron saturation velocity, and high thermal conductivity, have made silicon carbide (SiC) and Gallium Nitride devices an emerging and enabling technology for higher power density and higher temperature power converter designs [1]. Presentation will include research results on efficiency improvement and power density increase for various power electronic converters with a focus of electrification of vehicles.

BIOGRAPHY

Dr. Bulent Sarlioglu is an assistant professor in the College of Engineering at the University of Wisconsin–Madison. He is also one of the associate directors of the Wisconsin Electric Machines and Power Electronics Consortium (WEMPEC). Dr. Sarlioglu developed two graduate level courses in the area of power electronic drive systems for sustainable energy (wind, ocean, solar power) and hybrid electric vehicles at the Electrical and Computer Engineering Department at the University of Wisconsin-Madison since 2011. He also developed two new short courses in the area of energy storage and EMI/EMC. Dr. Sarlioglu previously worked at Honeywell International Inc.’s aerospace division for 11 years, most recently as a staff systems engineer, earning Honeywell’s technical achievement award in 2003 and an outstanding engineer award in 2011. Dr. Sarlioglu’s expertise includes electrical machines, drives, and power electronics with a focus on renewable energy, electric vehicles and aerospace applications. He is the inventor or co-inventor of 16 US patents as well as many international patents. He received his PhD from University of Wisconsin–Madison (1999), MS from University of Missouri–Columbia (1992), and BS from Istanbul Technical University (1990), all in electrical engineering.