

Lectures on Power Electronics and Mechatronics

Date	May 27, 2022
Location	ETZ E81 / ETH Zurich, Gloriastrasse 35, 8092 Zurich
Time	10.45 – 12.00
Link	https://ethz.zoom.us/j/67358052357



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Chancellor's Professor and the Min H. Kao Professor in Electrical Engineering and Computer Science

Application of HV SiC MOSFETs for Medium Voltage Converters

SiC MOSFETs have brought improvements in efficiency, size, and weight to several applications such as transportation, data center power supplies, and electric utility converters. These fast switching devices enable higher bandwidth control and smaller filter size. Application of high voltage (10 kV) SiC devices have their own unique challenges in isolation, high dv/dt rates, and this webinar will provide guidance on issues associated with using these devices in converters for utility applications and some solutions in regards to high voltage power supplies, gate drives, and protection. The webinar will include experimental results of using 10 kV SiC MOSFETs in an MMC module and power conditioning system (PCS) and some of the challenges that were encountered.

Biography

Leon M. Tolbert received the Bachelor's, M.S., and Ph.D. degrees in electrical engineering from Georgia Tech. He worked at Oak Ridge National Laboratory (ORNL), Oak Ridge, TN, from 1991 until 1999 on electric distribution and power quality projects. He joined the University of Tennessee in 1999, and he is currently a Chancellor's Professor and the Min H. Kao Professor in Electrical Engineering and Computer Science. He is a founding member for the National Science Foundation/Department of Energy Engineering Research Center, CURENT (Center for Ultra-wide-area Resilient Electric Energy Transmission Networks). He is also an adjunct participant at ORNL. Dr. Tolbert is a Fellow of the IEEE and a Registered Professional Engineer in the state of Tennessee. He is the deputy editor-in-chief of the IEEE Power Electronics Magazine. He conducts research in utility applications of power electronics including microgrids, interface with renewable energy sources, medium voltage multilevel converters, and the application of WBG power electronics.