FIU | **Seminar Experience**

ELECTRICAL & COMPUTER ENGINEERING

Friday, Mar. 20
11 am—12 pm

FIU Engineering Center
EC Room # 1105

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"Solid-State Transformers for Electric Power Distribution Systems"

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ABSTRACT

This seminar is divided in two. The first part will provide a general description of the University of Arkansas at Fayetteville, the department of Electrical engineering and the research Centers GRAPES, HiDEC and NCREPT. The second part addresses overview of selected SST topologies and potential applications. Interest on integration of distributed generation, dc grids, and energy storage into electric power distribution systems is leading to research on solid-state functions like voltage and power flow control, power quality enhancement, and an availability of a low-voltage (LV) dc bus for connecting distributed generation, energy storage units, and dc loads. These additional functionalities can be added into SSTs with their most common topologies consisting of three converter stages: an ac-dc converter, a traditional dual-active bridge with a high-frequency transformer, and an inverter for ac loads. Current and voltage ratings of available semiconductor devices are normally below distribution system ratings. So, SST modules are normally connected in series on the high-voltage side and in parallel on the LV side to achieve the higher voltage and current ratings imposed by these distribution system applications.

BIOGRAPHY

Juan Carlos Balda (IEEE M'78 SM'94) received his B.Sc. in Electrical Engineering from the Universidad Nacional del Sur (Bahía Blanca, Argentina) in 1979. He then worked for two and one-half years at Hidronor S.A., an electric utility in the Southwestern part of Argentina. He received his Ph.D. degree in Electrical Engineering from the University of Natal (Durban, South Africa) in 1986. He was then employed as a researcher and a part-time lecturer at the University of Natal until July 1987. He then spent two years as a visiting Assistant Professor at Clemson University, South Carolina. He has been at the University of Arkansas at Fayetteville since July 1989 where he is currently a University Professor and Department Head. His main research interests are Power Electronics, Electric Power Distribution Systems, Motor Drives and Electric Power Quality. He is a senior member of the IEEE, member of the Power Electronics and Industry Applications Societies, and the honor society Eta Kappa Nu. He is a faculty advisor to the IEEE Power Electronics Society branch.