

February 2010

Rock River Valley Section

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Event

Sense

The Institute of Electrical and Electronic Engineers, Inc.

IEEE RRVS, PELS Chapter, IAS Chapter, Control Systems Chapter
and Rock Valley College Meeting

SERVING IEEE MEMBERS OF NORTH CENTRAL ILLINOIS AND EXTREME SOUTH CENTRAL WISCONSIN

Aircraft Power System and Power Electronics Technology for the More Electric Airplane

WHEN Thursday, February 18, 2010

WHERE

Rock Valley College, Woodward Technology Center, Room 142. I-90 to Riverside Blvd., exit and go west to Mulford Rd. Go south to 2nd light, turn east into RVC. Follow road to left to last building on right.

AGENDA

6:00 PM Networking
6:30 PM Dinner
7:30 PM Presentation

PROGRAM

The ever growing demand for more electric power in modern aircraft coupled with shrinking available space for onboard electric equipment bays translate into very high power density requirements for airborne electrical equipment. The situation is further complicated by the increasing use of composite material and alloys in equipment and structures with lower temperature limits and poor thermal conductivity. This forces lower operating temperature limits on electrical equipment and prevents use of structures as heatsinks as they have conventionally been used. Combining all these opposing requirements drives design of the electrical equipment to be at the highest efficiency possible throughout all operating modes. High efficiency requirements apply to all aircraft electrical systems, including generation, primary and secondary distribution and all systems that utilize

electrical power.

The talk will cover the challenges cited and will attempt to define the constraints of power quality and EMI/EMC requirements on both generation and utilization equipment. Some examples will be presented of the rigorous testing and qualification required to prove *Power Electronics Technology* is ready for the *More Electric Airplane Challenge*.

SPEAKER

Dr. Waleed Said received the BS Physics in 1976, the MS Electric Power Engineering in 1980 and the PhD Power Electronics Engineering in 1985.

Dr. Said has worked in the aerospace industry for the majority of his career. He joined Hamilton Sundstrand in 1985 as a Sr. Research Engineer working on controls of variable speed constant frequency VSCF aircraft electric power systems and on electrically driven torpedo propulsion engines. He led development of power electronic motor controllers for electromechanical actuation products for regional jet airplane high lift flight actuators, and was principle investigator for the USAF sponsored Advanced Motor Drive program that produced fault tolerant high power motor and motor controller concepts, and for investigating powering



Space Shuttle Electric APUs with a Li-Ion Battery system and electric motor driven hydraulic pumps. Dr. Said is currently responsible for the technical oversight of all power electronics and motor controls technology at Hamilton Sundstrand. This includes researching advanced concepts, technical direction of development programs, and enhancement of quality & reliability of power electronics products. Parts of his responsibilities include technology maturation, research and technology roadmap strategy for future aircraft systems.

MEAL INFORMATION

Dinner will feature Grilled Chicken and Vegetarian Lasagna. The costs are: member: \$5, non-member: \$10, student members: \$2, student non-members: \$5. Please make **dinner reservations online (preferred) at http://meetings.vtools.ieee.org/meeting_view/list_meeting/1565** or by emailing Ginger at ginger.spinasant@hs.utc.com by **Tuesday, February 16, at 5pm**. Please include the following: name, phone number, email address, IEEE member number, choice of entree. Unemployed members may call the Treasurer for special arrangements.

NOTE

The meeting is open to the general public. You need not be an IEEE member to attend. Guests are welcome. Please call Ginger at 815-394-5696 for questions.

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Chair
alkesh.patel@ieee.org
815-394-2487



Larry Wachowiak
Vice Chair
l.wachowiak@ieee.org
815-397-9090



Mohsin Chowdhury
Secretary
mohsin.chowdhury@ieee.org
815-226-6893



Adrian Vandergrift
Treasurer
aevandergrift@ieee.org
815-226-2518



Jitendra Solanki
PACE & MD Chair
j.solanki@ieee.org
815-394-5675



Bob Parro
Communications Chair
PELS Chair
b.parro@ieee.org
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Joe Etminan
IAS Chapter Chair
joeetminan@ieee.org
815-921-3058



Prof. Don Zinger
NIU St Br Counselor
d.zinger@ieee.org
815-753-0540



Dr. Sam Barada
Computer/Control
Systems Chair
sbarada@ieee.org
815-226-6751



Jamal Shafii
EMI/EMC Chapter Chair
jamalshafii@ieee.org
815-394-5676

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terry.johnson@hs.utc.com
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mseece07@yahoo.com
630-806-7062



Richard Gocken
Education Chair
r.gocken@rockvalleycollege.edu
815-921-3055

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RRVS Calendar

- February RRVS Meeting — Engineering Week February 18**
 "Aircraft Power System and Power Electronics Technology for the More Electric Airplane", RVC, Rockford, IL
- March RRVS Meeting March 25**
 "Antennas and Field Probes for EMC Testing", Rock Valley College, Rockford, IL
- April RRVS Meeting April 29**
 Consultants Network Panel Discussion, Rock Valley College, Rockford, IL
- May RRVS 2011 Officer Election and Annual Picnic Meeting May 27**
 Steak barbeque, Hamilton Sundstrand Park, Belvidere, IL


Rock River Valley Section Chapters




Industry Applications Society Chapter
 Established 1992



Joint Computer/Control Systems Society Chapter
 Established 1995



Power Electronics Society Chapter
 Established 1996



Electromagnetic Compatibility Society Chapter
 Established 2007

Time-Sensitive Material

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