IEEE Madison Section Newsletter

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High Temperature Superconductor Cables And Their Applications For T&D Systems

Date/Time: Thursday, November 19, 2009, 11:45 AM – 1:00 PM
Speaker: John Diaz de Leon, American Superconductor
Location: Rocky Rococo's Pizza, 7952 Tree Lane (Madison Beltline Hwy. at Mineral Pt. Rd.), 608.829.1444
Menu: Pizza buffet, salad and soft drinks ($5.00 members, $10.00 non-members, free for UW-Madison student members)
RSVP: by November 16th to David Marca via e-mail (dmarca@openprocess.com) or call 617.645.1358

Non-member guests are always welcome!

High Temperature Superconductor (HTS) cables utilize superconductor materials which conduct well over 100 times the amount of electricity that can be conducted by conventional wires of the same size. Using superconductor based cables allows for highly efficient transmission and distribution of electricity under reduced right of way requirements. This presentation will provide a background to the developments in superconductor technology and its applications for power transmission and distribution applications such as cables, fault current limiters and machines. In addition to providing high power transfer capacity the superconductor cables can also be designed to be fault current limiting, if needed. The presentation will also discuss Superconductor Electricity Pipelines - application of direct current (DC) superconductor cables for power transmission over long distances in combination with voltage sourced converter based HVDC terminal stations.

John A. Diaz de Leon II, PE joined American Superconductor in 1999 after working for Alliant Energy/Wisconsin Power and Light Co. for 20 Years. He earned his Electrical Engineering degree from the University of Wisconsin. His current position is Consulting Transmission and Distribution Planning Engineer in AMSC Power Systems. He performs planning studies to analyze transmission and distribution systems for voltage, capacity, stability, transfer capability, harmonic and power quality problems. He also conducts studies to analyze wind farm interconnection requirements that include LVRT and HVRT capabilities, harmonic and power quality problems, voltage regulation, and power factor control. He has taught seminars on the topics of voltage stability and renewable energy. He received his PE license from the State of Wisconsin in 1983 and was elected to Senior Member of IEEE in 2008.

e-Business Design: A Shift to Adaptability

Date/Time: Thursday, December 17, 2009, 11:45 AM – 1:00 PM
Speaker: David A. Marca, OpenProcess, Inc.
Location: Rocky Rococo's Pizza, 7952 Tree Lane (Madison Beltline Hwy. at Mineral Pt. Rd.), 608.829.1444
Menu: Pizza buffet, salad and soft drinks ($5.00 members, $10.00 non-members, free for UW-Madison student members)
RSVP: by December 14th to David Marca via e-mail (dmarca@openprocess.com) or call 617.645.1358

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This talk distinguishes the three fundamental business design patterns: control, cooperation and autonomy. Today, most e-Business designs are not balanced, because they over-prioritize control. Balance is achieved when one basic pattern is the top priority, while the other two patterns are not ignored. The talk explains how to use these patterns to create one of three balanced e-Business designs: e-Commerce, e-Broker and e-Barter. Market forces are now taking place to incentivize companies to become more adaptable. This can take one of two forms: a) a better balanced e-Commerce design, or b) a shift from e-Commerce to e-Broker. This talk presents more adaptable design architectures for e-Commerce and e-Broker.

David A. Marca is Online Faculty and Ground Faculty for the University of Phoenix. He is the Business Area Chair for the Madison Campus, where he teaches undergraduate, graduate and MBA courses. David is also the Founder of OpenProcess, Inc. - an e-Business consulting firm since 1997 - that helps firms implement global workplace management and global e-Business solutions. David is a member of the IEEE, ACM and PMI.

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IEEE Entrepreneurs & Consultants Network, Madison Section

Acting Co-Chairs: Dennis Bahr, David Marca

2010 Reorganization Meeting

Purpose: Reconnect the IEEE Entrepreneurs & Consultants Network and take organizing action (e.g. mission, officers, plans, etc) to resume monthly meetings throughout 2010.

Venue: University of Phoenix, Madison Campus

Address: 2310 Crossroads Drive, Suite 300, Madison, WI 53718

When: Thursday, December 10, 2009

Time: 12:00pm to 1:30pm

RSVP by: Friday, December 4, 2009

RSVP to: dmarca@openprocess.com

Cost: $10 IEEE Members, includes lunch

Contact: David Marca, IEEE Secretary, Madison Section

Capital Science & Engineering Fair

The Capital Science & Engineering Fair (CSEF), supported by the Madison Section of the IEEE, is a regional high school science fair attracting students doing original science, technology, math or engineering research. The fourth annual CSEF will be held in Madison on February 27, 2010 and is open to high school students from Columbia, Dane, Dodge, Green, Iowa, Jefferson, Lafayette, Rock, and Sauk counties. Anyone interested in judging at CSEF should please contact the CSEF Judging Chair, Laura Balzano (sunbeam@ece.wisc.edu).

It's Never Too Late to Become a Professional Engineer: My Unconventional Path to Licensure

By Dave Cotton, P.E.

My path to licensure was not the path dictated by most engineers or engineering societies. When I graduated with an electrical engineering degree from the University of Connecticut in 1983, I was preparing for a career as an officer in the United States Air Force, so licensure was the farthest thing from my mind. I enjoyed my eight and a half years of service in the Air Force, including service in Desert Storm, but by 1992 I felt it was time to leave the Air Force. Soon afterward, I entered the wireless industry as a radio frequency (RF) engineer.

I enjoyed my 15 years of RF engineering in the wireless industry, but as the wireless industry made the change from a fast-growing industry to one of slower and steadier growth, rates that many RF engineers enjoyed in the 1990s were being cut — in some cases in half. I realized I needed to begin to differentiate myself from the pack and years of experience were clearly not enough. In 2000, I started to investigate licensure. I had met two engineers from the wireless industry who had obtained licensure. The first P.E. I encountered was Mark Taylor, who currently works for Qualcomm. He was the team lead on a project I was working on in 1996 in the Denver area to optimize the new Sprint CDMA network there. The second P.E. I met was Ron Graiff, a long established professional engineer who

was called to frequent zoning meetings in the Tri-State area around New York City. Both men encouraged me to pursue licensure at the time, when I did not know many radio frequency engineers who were licensed. In addition, they, as professionals, set an example for me to move forward toward licensure.

I decided late in 2001 to move forward with obtaining my P.E. license, but I changed jobs and got sidetracked. I re-initiated the process in late 2003. I was working in Wyoming at the time and I investigated several licensure routes. I was going to take the Fundamentals of Engineering (FE) exam and the Principals and Practice of Engineering (commonly referred to as the PE) exam at the same time. However, while researching the licensure rules for Wyoming, I realized I could get the FE exam waived if I had over 20 years of experience as an engineer.

I received the FE waiver in 2004 from the Wyoming licensing board to take the PE exam without the FE exam, so I started to study for the exam. I could have taken the exam in October 2004, but I felt I wasn't ready, so I fixed my focus on taking the April 2005 exam. I dug up old texts, bought some study guides, which helped me greatly as I didn't have a study group or class I could work with in rural Wyoming. I worked on problems I hadn't seen since college and brought in the practical experience I had gained. I took the exam and found out I passed in June 2005 — at the age of 43. However, I wasn't sure what I was going to do with the license.

Soon after, my wife and I moved to Utah and I wanted to be licensed in Utah. However, Utah initially rejected my application since I had not taken the FE exam. After being a little upset about this dilemma, I decide to go ahead and take the FE exam in Utah. Even though it was February, I still had time to apply and study for the April 2006 exam. I found the FE exam a bit more challenging than the PE exam because it covered subject matter I hadn't seen in more than 20 years. I passed the exam and received my Utah P.E. license in June 2006. However, I still wasn't sure what I was going to do with the license until more than a year later.

In late fall 2007, I found a job that required my RF engineering background and a P.E. license. In my present position as director of RF compliance for Sitesafe in Arlington, Virginia, I am able to work from home in Colorado, providing me with a great deal of flexibility and responsibility. Because I had taken both the FE and PE exams, I found I was eligible for Model Law Engineering status when I applied for my NCEES record. This greatly facilitated my ability to get licensed in other states and even opened the door to licensure in Canada, which I am pursuing in the province of Saskatchewan. It also gave me the confidence to pursue a master's degree at the University of Colorado in telecommunications. The master's degree also helped me earn continuing education credits, a requirement for professional engineers registered in different states.

Was getting licensed worth it? Absolutely! It might not appear to most electrical engineers (outside of the power industry) that getting licensed is worth the time and effort required, but licensure opens doors, especially if one wishes to become a private consultant. One can offer services to the public as an engineer and can legally use "Engineer" and its variant in a company name. Above all that, it reinforces the profession of engineering.

Dave Cotton, P.E., is an IEEE member and director of radio frequency compliance for Sitesafe in Arlington, Virginia.

IEEE Madison Section Officer Nominations

At the December 2009 monthly meeting, the IEEE Madison Section will conduct its annual officer elections prior to the technical presentation. The positions include chair, vice-chair, secretary, treasurer, and multiple member-at-large positions. Job descriptions can be found online at < http://www.ieee.org/web/geo_activities/units/Resources/Officer_Training/jobdesc.html>. Nominations may be made via e-mail to the one of the nominating committee members: Sandy Rotter, rotter@ieee.org or Clark Johnson, clarkjohnson@cpinternet.com. Additional candidate nominations are welcome and encouraged for all positions.

The nominations to date include:

Treasurer: David Marca

Secretary: Charles Gervasi