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March 2008

Rock River Valley Section

[www.ieee.org/rrvs](http://www.ieee.org/rrvs)

Event

Sense

The Institute of Electrical and Electronic Engineers, Inc.

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RRV Section and IAS Chapter Meeting

# PM Synchronous Machines: How Did We Get Here and What Lies Ahead?

**WHEN** Thursday, March 27, 2008

**WHERE**

Rock Valley College, Woodward Technology Center, Rooms 117/119. 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**

Permanent magnets (PM) were known to the ancient Greeks and have been used to build electric motors for almost one hundred years. So why is it only now, at the beginning of the 21st century, that we find ac brushless PM machines appearing at center stage for major new commercial, industrial, transportation, and residential applications? High-profile examples include powerful traction machines in nearly every hybrid-electric vehicle sold on the market today and some of the largest multi-megawatt wind turbine alternators ever built.

This presentation will explore the convergence of technical, economic, and

societal forces that have combined to ignite an explosive growth of PM machines and drives in a wide variety of power ratings and applications. A variety of recent PM machine applications in automotive traction drives and other types of power systems will be examined. Special attention will be addressed to key PM machine technology advances that are making this rapid expansion possible.

**SPEAKER**

Dr. **Thomas Jahns** received his undergraduate and graduate degrees from MIT, all in electrical engineering. He joined the faculty of the University of Wisconsin-Madison in 1998 as a Grainger Professor of Power Electronics and Electric Machines in the Department of Electrical and Computer Engineering. Dr. Jahns is a Director of the Wisconsin Electric Machines and Power Electronics Consortium (WEMPEC). Prior to coming to UW-Madison, he worked at GE Corporate Research and Development (now GE Global Research Center) in Schenectady, New York, for 15 years.

Dr. Jahns is a Fellow of IEEE and the recipient of the 2005 IEEE Nikola Tesla Award "for pioneering contributions to the design and application of AC permanent magnet machines". He is a Past President of the IEEE Power Electronics Society (PELS) and was awarded the 2007 IEEE-PELS Distinguished Service Award. He has served as a Distinguished Lecturer in

both the IEEE Power Electronics Society and the IEEE Industry Applications Society.

**MEAL INFORMATION**

Dinner will feature Chicken Alfredo over Linguini, and Egg Plant Parmigiana over Linguini. The costs are: member: \$5, non-member: \$11, student members: \$2, and student non-members: \$5. Please make your **dinner reservations by calling Ginger at 815-394-5696 or sending her an email ([ginger.spinasantahs.utc.com](mailto:ginger.spinasantahs.utc.com)) by Monday, March 24, at 5pm.** Please include the following information: your name, phone number, email address, IEEE member number, and 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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### **IEEE Chicago/Rockford Consultants' Network Meeting**

**\*\* A joint Affinity Group of the IEEE Chicago and Rock River Valley Sections \*\***

The next meeting will be on Monday, March 31, 2008. The optional informal dinner is at 6:15 PM at Bakers' Square, 270 E. Northwest Highway (corner of North Court), just south of the library, and the meeting at 7:30 PM at the Palatine Public Library, 700 North Court, Palatine, IL 847-358-1216. Please go to <http://ewh.ieee.org/r4/chicago/cn/> for more info. The subject is "**Small Business Retirement Plans**" and the speaker is **David Burke, a regional consultant for Fidelity Investments**.

David will present information on various options that a self-employed person or a small business owner has for retirement planning. He provides onsite financial education to organizations throughout the greater Chicago area on behalf of Fidelity Investor Centers. He will give us the highlights of available programs that allow those self-employed and small business owners to shelter income and build up a retirement nest egg. He is an expert in helping investors understand their income and investment needs and the strategies to address them. His presentation will include time to answer questions.

### **February RRVS Meeting Recap**

Representative Don Manzullo from the 16th Congressional District of Illinois was the guest speaker for the February 21, 2008, RRVS section meeting. He provided an in depth legislative update that focused on the recent Patent Reform Act of 2007 (HR 1908). This legislation has significant importance to our membership because of the role patents play driving innovation and benefits to technological progress. Representative Manzullo outlined the September 7, 2007, vote (220 for; 175 against) in the House of Representatives and the upcoming vote in the Senate. The IEEE submitted a letter in opposition to this legislation <http://www.ieeeusa.org/policy/policy/2007/102307.pdf>. Members are encouraged to contact their senators to express their viewpoint.

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**RRVS Calendar**

- March RRVS Section Meeting** ..... **March 27**  
"PM Synchronous Machines: How Did We Get Here and What Lies Ahead?", Rock Valley College, Rockford, IL
- EMC Seminar in Milwaukee (<http://www.ewh.ieee.org/r4/milwaukee/>)** ..... **April 1**  
"Back to the Basics of EMC and How the Basics Apply to Today's Leading Edge Technology" by Mark Steffka
- April RRVS Section Meeting** ..... **April 24**  
Tour of Ingenium Testing, Rockford, IL
- Annual NIU Student Branch Networking Social** ..... **April 25**  
Eduardo's, DeKalb, IL (6pm Networking, 7pm Dinner, 8pm Informal Presentations)
- May RRVS Section Meeting** ..... **May 29**  
RRVS Election/Picnic, 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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