
February 1997

Rock River Valley Section
www.ieee.org/regional/section/rock_river/

Event

Sense

The Institute of Electrical and Electronic Engineers, Inc.

RRV Section & IAS/PELS Chapters Mtg Hybrid Electric Vehicle Technology: The Next Automotive Revolution

When March 6, 1997

Where Rock Valley College, Technology Center, Room 117. Enter from Mulford, just north of Springbrook Rd.

Agenda

6:00 PM	Social Hour
6:30 PM	Dinner - Buffet
7:30 PM	Presentation

Speaker Robert P. Larsen, Manager of the Technology Engineering Section at Argonne National Laboratory's Center for Transportation Research.

Program Hybrid electric vehicles (HEVs) can draw power from two sources of energy: a consumable fuel and an energy storage system (e.g., batteries) that is capable of being charged by an on-board generator or an off-board power source. In practice, HEVs combine the motor drive and energy storage systems of electric vehicles with another power source, typically a gasoline- or diesel-powered engine. HEVs can combine the best attributes of conventional and electric vehicles. Many vehicle engineers are convinced that HEV technology represents the best way to maintain the performance attributes and creature comforts of today's vehicles while significantly improving the fuel efficiency and reducing

environmental impacts from cars and trucks.

However, there are significant barriers to the wide-spread use of HEVs, the principal one being cost. But as HEV technology is still in its infancy, both the benefits and costs of this advanced technology are only now becoming clear. With the announcement of HEV production plans in 1997 by Audi in Europe and Toyota in Japan, what are the prospects for the availability of HEVs in America? When will the promise of HEV technology be realized, and how will these vehicles perform? What components will be in them? Who will produce them and what will they cost?

Mr. Larsen's presentation will try to answer these questions by focusing on the status of HEV technology as defined by the results of testing over 75 HEVs since 1993. Advantages and disadvantages of the technology will be presented, as well as the state of HEV development around the world. Finally, the political and economic factors shaping the development of HEV technology and its production status will be summarized, and projections on the content and availability of this advanced transportation technology will be made.

Biography Mr. Larsen is responsible for the advanced vehicle technology development and fuels programs at Argonne, including research on advanced engine and emissions technology, alternative fuel vehicle demonstrations, and organizing advanced vehicle technology competitions such as the FutureCar Challenge, the Propane Vehicle Challenge and the Methanol Marathon. Argonne, under Bob's direction, operates the largest fleet of alternative fueled vehicles in the Department of Energy system, and has collected the largest database on EV and HEV performance and energy efficiency in the U.S. Bob is active in the Society of Automotive Engineers at the national and section level. He has been at Argonne for seventeen years, and holds a Bachelor's degree from Valparaiso University and two Master's degrees from the University of Wisconsin Madison.

Door Prizes Sponsored by RRV

Meal Dinner will be buffet style (with a min. of 15 people) featuring Chicken Divan. Please make your **dinner reservations** by calling **Gloria at 815-226-5247 by Tuesday, March 6, 1997**. The cost of the **dinner** is **\$4.00** for **IEEE members** and **\$12.00** for **non-members**. Unemployed members may call one of the officers for special arrangements.

Note The meeting is open to the general public. You need not be an IEEE member. However, please call to enable us to make proper arrangements.

RRVS To Celebrate 50 Year Anniversary at March Mtg

At the March meeting, the RRVS celebrates its 50th year as a section. In celebration of this historic event a special buffet dinner at Rock Valley College will be served featuring hand-carved roast beef and baked orange roughly. Tossed salad, relish tray, pasta salad, baked potato, broccoli, and parsley carrots will round out the meal. There will also be a dessert table with a choice of four different desserts. Best of all there will be no charge for dinner for IEEE members!

In addition, Dr. Robert L. Steigerwald from General Electric's Research Center in Schenectady, NY, will speak on advances in distributed power systems for electronic equipment, dealing with applications, converters, and components. Dr. Steigerwald will discuss current status and future trends of a variety of distributed power systems. System integration issues related to paralleling and cascading of converter modules will be explained. Benefits and challenges of distributed power systems in various applications will be summarized. Dr. Steigerwald is an IEEE Control Systems Society Distinguished Speaker.

There will be a 50 year anniversary brochure with interesting historical anecdotes included from the past five decades of RRVS activities. The IEEE Region 4 Director and Region 4 Central Area Chair will be joining us.

President Issues National Engineers Week Proclamation

In honor of the nation's engineering work force, President Clinton offered the following words during National Engineers Week 1997, celebrated Feb. 16-22.

"In our rapidly changing world, we look to America's engineers for the creativity and innovation to meet the increasingly complex technological challenges that lie before us. With outstanding skill and vision, these

dedicated professionals strive every day to improve the lives of all of our citizens. Thanks to their determination and ingenuity, they are truly making a world of difference in almost every aspect of human experience. From health care to the environment to the global economy, engineers have made invaluable contributions and promise us a future of even greater health and prosperity.

"During National Engineers Week, engineers across the nation are making a special effort to help millions of students discover practical applications of math, science, and technology through hands-on activities. I encourage all Americans to take advantage of this unique opportunity to learn about the engineering profession and to recognize the countless contributions our nation's engineers make to the quality of our lives."

Recent Changes In The PE Exam Process

by Dr. Gary Blank

The registration process consists of passing two written eight-hour exams. The first exam is the F.E. (fundamentals of engineering, used to be called E.I.T. engineer-in-training). The second eight-hour exam (called the P.E. exam) is taken after the first one is passed. It is based entirely upon the candidate's major field of engineering. It involves fewer and longer problems.

F.E. exam changes enacted in 1996 resulted in: two new categories of subjects in the general engineering portion: computers and ethics; choices for answers went from 5 to 4; number of problems went from 140 to 120 in the mandatory four-hour morning session, and from 70 instead of 60 problems in the four-hour afternoon session (50% of grade).

A report describing more specific details of the exam has been prepared. Request a free copy from Engineering Update Institute, P.O. Box 70155, Plato Center, IL 60170, 847-464-4007(V) 847-464-4081(F) E-Mail 102220.1406@compuserve.com

January Meeting Recap

Prof. Donald Novotny (below), former Grainger professor of Power electronics at the University of Wisconsin at Madison, gave an insightful talk about AC machines and their control. He skillfully took the audience through the development of AC machines and introduction of power electronic converters. He highlighted a number of issues which have caused problems in adapting AC machines with the new environment i.e low speed control stability and effect of waveform harmonics. He showed how vector control, which revolutionized the control of AC motors, was a direct application of DC motor principles. He ended his talk with his vision on efficient self adaptive motor drive systems of the future.

Prof. Novotny is founder and co-director of the Wisconsin Electric Machines and Power Electronics Consortium (WEMPEC).



Submissions to Event Sense

Send articles and job ads to the *Event Sense* editor, Bob Parro, via e-mail (preferred), or fax. Job ads will run for two consecutive months. Contact the *Event Sense* editor if the ad needs to run longer. Please make submissions by the twenty-fifth of the month. All submissions are subject to editing for style, clarity, and space considerations.

e-mail: b.parro@ieee.org
fax: (815) 394-2497



RRVS Executive Committee

(l-r) standing: Larry Wachowiak, Treasurer; Hassan Mansir, IAS Chair; Don Zinger, NIU Student Branch Counselor; Matt Zimmer, Secretary and IAS Vice Chair; Roger Caruana, Education Chair; seated: Caio Ferreira, Past Section Chair, Bob Parro, Section Chair; Bill Barber, Membership Chair; Mark Harris, Past Secretary; Paul Peterson, Awards Chair

The Rock River Valley Section would like to give recognition to the following area companies and university for supporting Section Officers:

Sundstrand Corporation • 3C Computer Systems • William Barber & Associates • Northern Illinois University

Rock River Valley Section of the IEEE 1996-1997

[WWW: www.ieee.org/regional/section/rock_river/]

Elected Executive Committee

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Treasurer	Larry Wachowiak	l.wachowiak@ieee.org	(815) 394-5676

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Northern Illinois University - Student Branch Officers

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*Messages for student officers can be left at the NIU Dept of Electrical Engineering,
(815) 753-9974 or e-mail at sb.niu@ieee.org*



Rock River Valley Section
Established 1947

Internet Access For \$5/mo

Obtain text-based Internet access from the Sinnissippi Valley Freenet. Ideal for Commodore 64, Apple 2 and VT100 terminal users that don't have graphics capability. Access Winnebago County tax information. Send/receive e-mail. Contact Carol Ford at: sinnfree@sinnfree.org

Calendar

- Joint IEEE RRVs/ASME Meeting** **TUESDAY, Feb 18**
The Practice of Engineering in the Information Age, Dr. Avram Bar-Cohen, Univ of Minnesota
- February Section Meeting** **Thursday, Mar 6**
Hybrid Electric Vehicle Technology, Robert Larsen, Argonne National Laboratory's Center for Transportation Research
- March/RRVS Jubilee Section Meeting** **Thursday, Mar 27**
Advances in Distributed Power Systems for Electronic Systems, Dr. Steigerwald, GE Research Center
- April Section Meeting/Tour** **Thursday, April 24**
Byron Nuclear Power Plant



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**Industry Applications
Society Chapter**
Established 1992



**Power
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