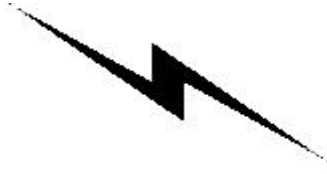


January 1996

Rock River Valley Section

Established 1947

Event



Sense

The Institute of Electrical and Electronic Engineers, Inc.

RRVS Section & IAS Chapter Meeting

Electric Motors For Variable Speed Drives - A Biased Look Into The Future

When Thursday, January 25, 1996.

Where Rock Valley College, Technology Center, Rooms 117/119. Enter from Mulford, just north of Springbrook Rd.

Agenda 6:00 PM Social Hour/Tours
6:30 PM Dinner - Buffet (min. 15)
7:30 PM Presentation

Speaker Dr. Gordon R. Slemon, Industrial Applications Society Distinguished Lecturer; Fellow, IEEE

Program Variable speed is a necessity for some drive applications and is desirable for many others. To reduce energy consumption and to improve output quantity and quality, adjustable speed is being adopted increasingly for drives which have traditionally been constant speed. This lecture presents some comparisons of various electric motor types and focuses on factors affecting the appropriate choice of motor for use in both high performance drives and continuously rated drives.

Included in this comparison are commutator, induction, reluctance, switched-reluctance and permanent-magnet motors. These are considered for applications ranging from those optimizing rated torque or power for a given frame size to those demanding maximum acceleration capability.

The author sees reason for a much wider application of permanent magnet motors in the future.

Biography GORDON RICHARD SLEMON is professor Emeritus of Electrical and Computer Engineering at the University of Toronto. He received a B.A.Sc. degree in Electrical Engineering from the University of Toronto in 1946 and an M.A.Sc. degree in 1948. He earned a Diploma of the Imperial College of Science

and Technology and a Ph.D at the University of London in 1952 and was awarded a D.Sc.(Ecg) degree from London in 1968.

In his early career was employed with Research Enterprises Ltd. and Ontario Hydro and Atomic Energy of Canada. He taught at the Imperial College of Science and Technology from 1949 to 1953 and at Nova Scotia Technical College from 1953 to 1955. He served as Head of the Electrical Engineering Department at the University of Toronto from 1966 to 1976, and as Dean of its Faculty of Applied Science and Engineering from 1979 to 1986.

In recent years, his research has focused on the design and modeling of electric machines, with emphasis on induction and permanent magnet motors for variable speed drives, including the effects of magnetic saturation. He is the author or co-author of five textbooks, most recently "Electric Machines and Drives" published by Addison Wesley in 1992 and "Power Semiconductor Drives" published by Wiley in 1984. He has written some 150 technical papers, most of them in cooperation with colleagues and graduate students. Currently, he acts as a consultant to a wide range of industrial and government clients.

In 1980, he initiated the Innovations Foundation, a corporation devoted to marketing inventions made at the University of Toronto and is currently Vice-Chairman of its Board. He is co-founder and director of Inverpower Controls Ltd., Burlington, Ont., which develops and manufactures power electronic equipment. Other directorships include Electrical Engineering Consociates Ltd., the Canadian Academy of Engineering, Spartec International and MettNet Inc.

He has been involved in a number of international educational assistance projects, On contract from the Canadian Colombo

Plan, he served on site in 1963-4 as Technical Advisor during the establishment of the Karnataka Regional Engineering College, Manalore, India. He participated in the establishment of a Master of Engineering program at the University of Havana, Cuba, he supervised a Canadian training program for engineers of the Egyptian Electricity Authority, and he was involved in a staff development program at Xian Jiaotong University, China. He negotiated a cooperative Ph.D program with King Ibn Saud University in Saudia Arabia.

He is an Officer of the Order of Canada, an Honorary Fellow of the Institution of Electrical Engineers (UK), a Fellow of the Engineering Institute of Canada, and the Canadian Academy of Engineering. He received the Western Electric Award in 1965, the Canadian Centennial Medal in 1967, the Engineering Institute of Canada Ross Medal in 1978 and 1983, the IEEE Centennial Medal in 1984, the University of Toronto Engineering Alumni Medal in 1987, the Canadian Engineering Educator of the Year Award in 1992 and the Nikola Tesla Award and Gold Medal in 1990.

Door Prizes Sponsored by RRVS

Meal Dinner will be buffet style (with a minimum of 15 people) featuring Chicken and Ham or Roast Beef. Please make your **dinner reservations** by calling **Gloria** at **815-226-5247** by **Monday, January 22**. The cost of the dinner is **\$4.00** for **IEEE members** and **\$10.00** for **non-members**. Unemployed members may call one of the officers for special arrangements.

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

November Meeting Recap

by Don Zinger

November 30 was an exciting night here in the new engineering building at Northern Illinois University. That was the night the Rock River Valley Section (RRVS) had their monthly meeting here. The meeting began with a social time in the lobby. Many of the visitors were treated to a tour of the 125,000 square foot engineering building, housing 29 laboratories and 65 offices. Although the facility is not yet running at its full capability, its impressive potential is apparent.

Following the tours and a delicious dinner, supplied by Yen Ching Restaurant in De Kalb, the main program was initiated. Bob Parro, chair of the RRVS, starting the meeting off with a brief address. His talk, mostly aimed at the many students in the audience, presented a viewpoint of the types of skills required by graduates and asked for feedback on what members would like to see done at the RRVS.

Next, two awards were presented by Mike Park, President of the RRVS NIU Student Branch. The awards were the Senior Design Award and the Prospatheia Award. The senior design award is presented to the graduate with the best senior design project in the previous year. The Prospatheia award is an award given to the "most improved" student, someone who has started out with difficulty but who overcame those difficulties and achieved good marks in his final year. This year both awards went to the same person, Michael Bychowski. His senior design paper was entitled "Adaptive Noise Cancellation Using FXLMS Algorithm with In-Line Cancellation". It was an outstanding piece of undergraduate work. His undergraduate career also ended very well with Michael receiving a 4.0 in his final semester. In addition, Michael was active in many student organizations such as the IEEE student branch.

The highlight of the evening was the presentation by the guest speaker from Argonne National Laboratories (ANL), Dr. Gordon Knapp. In his talk,

"Photons for the Future," Dr. Knapp discussed the new Advanced Photon



Sources at ANL, The APS is essentially a source of very high intensity X-rays. This is the first of this type of facility in the United States and only one of three in the world. It is housed in an impressive structure measuring approximately one mile around its outside circumference. The facility will be capable of accommodating many experiments at once. The experiments will probe into the inner fabric of materials, looking at their molecular structure by the reflection and scattering of the electron beams. By investigating the composition of the molecules, specialized materials can be made, from customized drugs to extremely small polycrystalline semiconductors.

Dr. Knapp discussed the history of X-ray sources and the development of the advanced photon source. Along with a description of the facility, Dr. Knapp gave an intriguing report on its many possible uses. He also discussed many of the technical challenges that needed to be overcome in order to achieve such a high intensity beam. These included the need to keep the system components cool and the stringent alignment requirements on the system. The APS is truly an impressive tool. The presenter did an excellent job of portraying the APS and its uses. The NIU student branch of the IEEE would like to thank all the attendees for their participation. We hope that you will come again next November!

In Search of RRVS Memorabilia

In March of 1997 your Rock River Valley Section will celebrate its golden jubilee - fifty years as a section. Help us commemorate this momentous occasion by sharing your memories with us. If you are aware of significant events such as seminars, conferences or awards sponsored by our section or honors given to members or have photographs, newsletters, and /or historical information please share them with us. **Contact Larry Wachowiak at 394-5676, fax at 394-2497, or e-mail at l.wachowiak@ieee.org.** We plan to share these items with all of our membership during 1996/1997, our anniversary season.

Members -- Use the IEEE Professional Assistance Network

We offer unemployed members an opportunity to run a *free* position wanted ad in the *Event Sense*. Write your own ad and e-mail or FAX it to the *Event Sense* editor. Your ad will appear in the next available issue. Job ad guidelines: RRVS members only; less than 60 words; typed.

Reminder -- Just The FAX

Have the *Event Sense* faxed to you for early, efficient delivery. Send your fax number, along with appropriate routing information, to the *Event Sense* editor.

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) 226-7488

February Meeting Preview

Project Management Over Your Internal Web Site. The explosive growth of the Internet and the World Wide Web has enabled the unprecedented exchange of information between people and computers throughout the world. This presentation will demonstrate how teams can apply this accessible technology to revolutionize the management of complex projects. The headaches every project manager faces will be addressed, including: overcoming cross functional communication problems; keeping track of the blizzard of information and documents; keeping management informed; and maintaining traceability in an environment of constantly changing

requirements.

RRVS Makes its WWW Debut

by Paul Peterson

The RRVS recently became yet another stopping point in an internet surfer's journey on the World Wide Web (WWW). For those unfamiliar with this latest communications resource, the WWW consists of a variety of hypertext documents located at various Internet sites. Using web browsing software (Netscape, Mosaic, etc...) a user can access a web page by entering its Uniform Resource Locator (URL), or by jumping to it from a link in another page. The URL for the RRVS web home page is:

<http://www.ceet.niu.edu/orgs/rr-ieee/rrvs.htm>

Presently, the content of the page gives current events and a brief overview of the RRVS. However, with your help, we could use this page to establish a stonger communications link among our section by adding more content as well as links to other pages of interest to members. If you have any page link suggestions, or would like a link added to your own personal page, e-mail your suggestions to: paul.peterson@ieee.org

When you get a chance, surf the net to our page and let us know what you think. Enjoy!

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 1995-1996

Elected Executive Committee

Chair	Bob Parro	b.parro@ieee.org	(815) 394-2947
Past Chair	Caio Ferreira	c.ferreira@ieee.org	(815) 394-2903
Vice Chair	Bill Barber	b.barber@ieee.org	(815) 235-4110
Secretary	Mark Harris	m.harris@ieee.org	(815) 226-6098
Treasurer	Larry Wachowiak	l.wachowiak@ieee.org	(815) 394-5676

Appointed Executive Committee Chairs

IAS Chapter Chair	Mark Harris	m.harris@ieee.org	(815) 226-6098
IAS Vice Chair	open		
Comp/CS Chapter Chair	Paul Peterson	paul.peterson@ieee.org	(815) 394-2584
Comp/CS Vice-Chair	open		
Educational Activities	Roger Caruana	r.caruana@ieee.org	(815) 332-4606
Technical Activities	Roger Caruana	r.caruana@ieee.org	(815) 332-4606
Membership	Bill Barber	b.barber@ieee.org	(815) 235-4110
Awards	Paul Peterson	paul.peterson@ieee.org	(815) 394-2584
Publicity, Newsletter Editor	Bob Parro	b.parro@ieee.org	(815) 394-2947
RRVS Jubilee	Larry Wachowiak	l.wachowiak@ieee.org	(815) 394-5676

Northern Illinois University - Student Branch Officers

St Br Counselor	Prof. Don Zinger	d.zinger@ieee.org	(815) 753-0540
St Br President	Mike Park		
St Br Vice President	Todd Placher		
St Br Secretary	Mel Saldeen		
St Br Treasurer	Bob Selepa		

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

Calendar

- January Section Meeting** **January 25**
Electric Motors For Variable Speed Drives - A Somewhat Biased Look Into The Future
 - February Section Meeting** **February 29**
Project Management Over Your Internal Web Site
 - March Section Meeting** **March 28**
Software Specification and Design: A Disciplined Approach for Real-Time Systems
 - April Section Meeting** **April 25**
TBD Tour
 - May Section Meeting** **May 30**
Annual RRVS Officer Elections and Section Picnic
-



Rock River Valley Section
Rockford, IL 61125-1612

Non-profit Org.
U.S. Postage
PAID
Rockford, IL
Permit No.496

Time-Sensitive

Inside This Issue

- January Section Meeting Notice	1
- November Section Meeting Recap	2
- In Search of RRVS Memorabilia	2
- February Section Meeting Preview	3
- RRVS Makes Its WWW Debut	3
- RRVS Officer Contact Information	3
- Calendar	4