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September 1996

Rock River Valley Section

Established 1947

Event



Sense

The Institute of Electrical and Electronic Engineers, Inc.

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## RRV Section & IAS Chapter Meeting

### Insightful Dynamic Analysis of AC Machines & Their Control

**When** NOTE NEW DAY

**Friday**, October 4, 1996

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

#### Agenda

6:00 PM Social Hour/Tours

6:30 PM Dinner - Buffet

7:30 PM Presentation

**Speaker** Dr. Joachim Holtz,  
Chair for Electrical Machines  
and Drives at Wuppertal  
University, Germany, and IAS  
Distinguished Lecturer

**Program** AC motors have proliferated as the most important machine type used in variable speed drive systems. The dynamic analysis and description of revolving field machines is supported by well-established theories: Park's transformation (1929), and the space vector theory by Kovacs and Racz (1959). Yet some inconsistencies with the theory of dynamic systems exist: The machine eigenvalues suggest the existence of two damped oscillators; it appears unsatisfactory that the respective eigenfrequencies change with the velocity of the

reference frame. This contradicts the common understanding according to which the eigenfrequency is an inherent system property.

A major theoretical contribution of Dr. Holtz makes the spatial distributions of magnetic energy the basis for the analysis of transients in AC machines. This theory provides unprecedented insight into the dynamics of modern AC drives. The approach is based on complex state variables. The formal analysis constitutes an extension to the space vector theory and to the theory of dynamic systems.

**Biography** Joachim Holtz is currently Chair for Electrical Machines and Drives at Wuppertal University, Germany. He was graduated from the Technical University Braunschweig, Germany, in 1967, where he later received his doctorate degree. In 1969 he became Associate Professor and Head of the Control Engineering Laboratory at the Indian Institute of Technology in Madras, India. As the founder of this laboratory, he introduced power electronics as a new discipline, both in teaching and research. As early as 1971, he developed a prototype of a thyristor controlled pulse-width-modulated (PWM) AC drive for the Indian industry. He became Full Professor

of Electrical Engineering in 1971. In 1972 he joined the Siemens Research Laboratories in Erlangen, Germany. His initial research project on high-power thyristor PWM inverters resulted in the inventions of the first three-level inverted converters, and a family of multilevel power converters. In 1973, he became Head of the Research and Development Group, New Traffic Technologies, where he developed the linear synchronous motor concept for magnetically-levitated, high-speed trains.

#### Door Prizes

Co-sponsored by RRVS and Best Buy

**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 Burton at 815-226-5247 by Monday, September 30, 1996**. 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. You need not be an IEEE member. However, please call to enable us to make proper arrangements.

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## RRVS Turns 50!

You may be wondering why this issue of the *Event Sense* is on gold paper. From September 1996 to May 1997 the Rock River Valley Section is celebrating its 50th anniversary. The RRVS was formed in February 1947, as a section of AIEE, the American Institute of Electrical Engineers. In 1963, the AIEE merged with the IRE, Institute of Radio Engineers, to form the IEEE, the Institute of Electrical and Electronics Engineers. As an IEEE section, the RRVS has been in existence only 33 years, just as most of the IEEE sections have been.

During the next few months we plan to provide information of interest about the history of the RRVS section. Unfortunately, our records only go back to 1972. If any of you remember more information, please contact Larry Wachowiak to relate your information so that it can be included in future issues.

Now for some history. According to Don Fair, who worked at Sundstrand Machine Tool Division in the early 1970's, our section sponsored its first and only technical conference in the early 70's. The conference was for machine tool technology and was held at the Wagon Wheel resort in Rockton. Attendees came from all over the country. Our section members arranged

transportation to the Wagon Wheel resort, for a fee. This helped to pay for the conference and generate a profit for the section.

In order to pay for the picnics in the early years, members and/or their companies donated supplies and food for the picnic. Now, due to new and prudent fiscal approaches, our section is able to provide the picnic free to our members.

In 1975, no volunteers could be found to be active officers of the section. John Thomas sent letters to National, Region IV, and to the membership to ask for help. Fortunately, new people from Micro Switch (now Honeywell in Freeport) and Ingersoll volunteered to be officers. This action re-invigorated participation and the new officers gave Thomas a plaque in 1977, in appreciation for saving the section.

In 1984, the AIEE celebrated its 100th birthday. The RRVS celebrated the event by partaking in a live video conference with prominent engineers and celebrities at IEEE national headquarters in the New York area. This event led to a number of video conferences, about nine total, from 1984 to 1986, that the RRVS sponsored in conjunction with the University of Illinois at the Rockford School of Medicine. In 1991 the RRVS, under the

leadership of Caio Ferreira, began participating in the Distinguished Lecturer Program. This series enabled the RRVS to invite prominent and accomplished engineers, scientists, and academics from around the country, and this year from around the world, to lecture at RRVS monthly section and chapter meetings.

## May Meeting Recap - Section Picnic & Elections

The same people who were RRVS officers in the 1995/96 season were the sole nominees for the same positions in the 1996/97 season. All of the nominees were unanimously re-elected to the same positions. The RRVS elected Executive Committee officers for the 1996/97 season are:

Chair: Bob Parro  
 Vice Chair: Bill Barber  
 Treasurer: Larry Wachowiak  
 Secretary: Mark Harris

## 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](mailto:b.parro@ieee.org)  
 fax: (815) 394-2497

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

#### 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 Chair	Hasan Mansir	h.manisr@ieee.org	(815) 226-6875
IAS Vice Chair	Matt Zimmer	m.zimmer@ieee.org	(815) 394-3456
Comp/CS Chapter Chair	Paul Peterson	paul.peterson@ieee.org	(815) 226-2584
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) 226-2584
Publicity, Newsletter Editor	Bob Parro	b.parro@ieee.org	(815) 394-2947
Nominations	Matt Zimmer	m.zimmer@ieee.org	(815) 394-3456
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) 753-0706
St Br Chair			
St Br Vice-Chair			
St Br Secretary			
St Br Treasurer			

*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](mailto:sb.niu@ieee.org)*



**Rock River Valley Section**  
*Established 1947*

## Calendar

**September Section Meeting** ..... **Friday, Oct 4**  
Dr. Holtz on Insightful Dynamic Analysis of AC Machines & Their Control

**October Section Meeting** ..... **Oct 24** (tentative)  
Engineering Use of the World Wide Web (topic and date tentative)

**November Section Meeting** ..... **@ NIU College of Engineering, Nov 21**  
History of Radio



Joint Computer/Control Systems  
Society Chapter



Industry Applications  
Society Chapter

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### Time-Sensitive Material

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