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C A L E N D A R O F E V E N T S

For reservations call the IEEE office at 236-4609
(unless otherwise indicated)
COPY DEADLINE: 25th OF THE MONTH PRECEDING PUBN.

OCT. 9	Monthly Meeting - ALL WELCOME	IEEE Executive Cte.	McDonald's Plaza NE cor. McDonald Dr. at 22nd, Oak Brook, IL	Meeting	7:30 PM
10	"High Voltage DC"	Power Engrng. Soc.	Carson Pirie Scott Wabash & Monroe Sts. Highland Rm., 8th Fl.	Social Lunch Meeting	11:30 AM 12:00 PM 12:30 PM
15	"Radio Astronomy - A Challenge to the Microwave Engr."	Antennas & Prop./ Microwave Theory & Techniques Soc.	Louis' Restaurant 351 E. Lake St. Addison, IL	Social Dinner Meeting	5:30 PM 6:30 PM 7:30 PM
17	"Nuclear-Site Security"	Industry Appls./ Industrial Electronics Soc.	Mr. Peter's Restaurant 1018 Mt. Prospect Plaza (NE cor. Rand, Central)	Social Dinner Meeting	5:30 PM 6:15 PM 7:15 PM
31	"The First Laser-Disk Video Arcade Game"	Fox Valley Sub. (joint with the Computer Soc.)	Wilton Manor 2200 N. Main St. Wheaton, IL	Social Dinner Meeting	6:00 PM 7:00 PM 8:00 PM
NOV. 5-9	COMPSAC84 (8th Intl. Computer Soft.& Appls.Conf.)	Computer Soc. (see article in this issue)	Americana Congress Hotel, 520 S. Michigan Ave., Chicago	(For inf., Chas. Hollocker, 979-5823, 852-4263)	
7	"Geothermal Power"	Power Engrng. Soc.	Holiday Inn 4400 Frontage Rd. Hillside, IL		
10	Seminar - "Intro. to Variable Frequency AC Drives"	Industry Appls./ Industrial Electronics Soc.	Mr. Peter's Restaurant 1018 Mt. Prospect Plaza (NE cor. Rand, Central)	(For inf., Henry Dwyer, 937-7105)	
13	Monthly Meeting - ALL WELCOME	IEEE Executive Cte.	McDonald's Plaza NE cor. McDonald Dr. at 22nd, Oak Brook, IL	Meeting	7:30 PM
14	Tour - Communications Facilities	Fox Valley Sub.	The Wall Street Journal 400 Shuman Boulevard Naperville, IL		
20	"Wide Screen/ Wide Band TV"	Northwest Sub.	Mr. Peter's Restaurant 1018 Mt. Prospect Plaza (NE cor. Rand, Central)	Social Dinner Meeting	6:00 PM 7:00 PM 8:00 PM
28	"Audio Electronics"	Fox Valley Sub.	Wilton Manor 2200 N. Main St. Wheaton, IL	Social Dinner Meeting	6:00 PM 7:00 PM 8:00 PM

"RADIO ASTRONOMY - A CHALLENGE TO THE MICROWAVE ENGINEER" — Since literally the dawn of time, radio waves of cosmic origin have been incident upon the earth. During the past 50 years, the development of the technology to measure the spectra, angle of arrival, polarization, and time variation of these waves has greatly increased our knowledge of the universe and led to the discovery of objects such as quasars, pulsars, the cosmic background, and interstellar molecules.

The talk at the Antennas & Propagation/Microwave Theory & Techniques Societies on October 15, 1984 will begin with a brief classification of radio astronomy sources in terms of their spectra and angular size. A few slides will illustrate the view of the sky a person would see if he or she could see at radio wavelengths. This will be followed by an introduction to the use of antenna arrays and a description of some recent or in-construction radio astronomy facilities. Finally, the current status and future challenges in the areas of antennas, low-noise receivers, wide-band communications, and high-speed data processing will be discussed.

Guest speaker Sander Weinrab was head of the Electronics Division of National Radio Astronomy Observatory and was responsible for design of equipment for the Green Bank, Kitt Peak, and Very Large Array radio observatories. After a two-year leave, he returned to NRAO to specialize in development of low-noise devices. He is the author of over 50 publications in the areas of radio astronomy observations, millimeter-wave receivers, and low-noise technology. He is a member of the International Scientific Radio Union, a Fellow of the IEEE, an advisor to the European Institute for Millimeter Wave Radio Astronomy, and a Research Professor at the University of Virginia.

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Change of Address
A change of address form is included in each issue of SPECTRUM. Your local post office will also supply you with cards, mail to Roseann Schultz, Member Services, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. Include your SPECTRUM mailing label if possible. We cannot forward this information for you, so please do not send it to the local office.

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IAS/IES TO PRESENT "NUCLEAR-SITE SECURITY" — On October 17, 1984 the Industry Applications/Industrial Electronics Societies will present "Nuclear-Site Security." Mr. Ron Chrzanowski, Security Administrator for the past two years at the Byron Nuclear Generating Station, Commonwealth Edison Company will be guest speaker. He will present a fascinating view of state-of-the-art security systems. All security systems have become increasingly sophisticated. Nuclear-site security systems use a wide range of electronic wizardry from sensors to computers. These are multi-million dollar systems that require high-performance hardware and software. They provide efficient utilization of guards, watchmen, and administrators.

There is no charge to attend the meeting only. The dinner cost for IEEE members is $10 and $12 for non-members. See Calendar of Events for meeting location and time.

UPDATE

MATH/SCIENCE EDUCATION BILL SIGNED INTO LAW — On August 11, the President signed the math/science education bill into law (P.L. 98-377). The measure survived a series of legislative perils: indifference, absence of Administration support in the early stages, unrelated amendments with explosive political content, (involving efforts to combat some forms of segregation, prayer in schools, use of school property by religious groups, etc.), and--finally--some arcane parlimentary tactics used by opponents.

What the bill does is give new drive and focus to math/science education by means of $425 million in FY 1984 and $540 million in FY 1985. The law directs the funds to be allocated in the following ways: • *Department of Education* - Authorizes $350 million in fiscal 1984 and $400 million in 1985 for state grants for teacher training and retraining. • *National Science Foundation* - Authorizes $45 million in fiscal 1984 and $80 million in 1985 for foundation programs, including grants for teacher training institutes and for the development of instructional materials, awards to recognize outstanding teachers, and merit scholarships for college students who plan to become math or science teachers.

POSITION AVAILABLE ON THE MIDCON BOARD OF DIRECTORS — The Chicago Section of IEEE is entitled to two Director positions on the MIDCON Board of Directors. Due to a resignation of one of our representatives, there is an immediate need to fill that position. A significant portion of the Chicago Section's revenues is derived from the MIDCON surplus that is allocated to our Section. The Section is seeking an individual that will faithfully represent our Section's interest on the MIDCON Board. The position requires a three year commitment and the support of the individual's employer. Interested individuals should promptly submit their credentials to: Henry Korman, Vice Chairman • Gentry Sales & Engineering • 6N130 Highland Ave. • Medinah, IL 60157 • 312: 893-9352.

Statements by Candidates for 1985 President-Elect

The following independently written statements by the two candidates for President-Elect, Dr. Jose B. Cruz, Jr. and Dr. Bruno O. Weinschel, have been especially prepared for readers of IEEE newsletters. It is hoped that these statements will supplement the biographical sketches and other statements made by the candidates which appear elsewhere in the IEEE literature and that they will assist IEEE member voters in the election process.

Statement by Jose B. Cruz, Jr.

Improvement of Technical and Educational Services to Members

Advances in computers, communications, microelectronics, electronic materials, electromagnetics, systems, energy, and other areas within the scope of IEEE concern have been dramatic in recent years. IEEE members must continuously learn a significant amount of new material. The nature of our profession demands that lifelong learning, in its broadest sense, occupy a central place in our individual activities.

The IEEE provides an organizational framework through which each member can participate to more fully utilize collectively developed technical services. Publications, short courses, workshops, Society and Regional conferences, and Section/Chapter meetings will continue to be the principal vehicles through which we achieve lifelong learning objectives. In view of the great diversity of our fields of activity and the speed with which these fields change, I believe that we need to develop new and highly flexible means of service for delivering educational and technical information.

This year the IEEE Publications Board—which I chair—will provide an experimental service called "Finding Your Way." This enables a member, who wishes to learn a new field, to access a computer system through a communication network. Members can obtain listings of tutorial articles, workshops and conferences, home study courses, special satellite broadcasts, short courses, IEEE press books, and other relevant aspects on desired topics. I propose to greatly expand this service so that a member with a personal computer or terminal may obtain a variety of additional information services from IEEE.

Enhancement of Status of Members of the Profession

An important mission of the IEEE is to enhance the status of the members of the profession. This is a constitutional mandate which I strongly support. Although our principal activity in this regard is confined to the United States arena, many professional issues have universal applicability. Thus, we are addressing concerns affecting the status of the profession as a whole. Moreover, we are serving the needs of a large fraction of IEEE members who reside in the United States.

I am very supportive of the USAB positions on career enhancement issues including professional practices for engineers and their employers, portable pensions, patent rights, and age discrimination; salary surveys and other member opinion surveys; and legislative coordination. We need to develop more position papers to address the major problems facing the profession. Furthermore, we should give strong support to the joint USAB/TAB initiatives on: technology policy issues on productivity, technology transfer, energy, the environment, and communications.

As President I will work for the improvement of our technical services to IEEE members through expanded tutorial and educational materials. I will support the creation of a system that provides access to a variety of IEEE information services through a computer network. Overall, I will press for the establishment of a dynamic professional development program to enhance the status of members of the engineering profession.

Statement by Bruno O. Weinschel

1. *Necessity To Improve Competitiveness:* The most important problem confronting the economy today where engineers can play a more important role, is the *re-establishment of our competitiveness in world trade and against imports*. This requires the introduction of many new technologies into "smoke stack" industries and continuing *improvement of the manufacturing processes, quality control, reliability, after-sales-service and customer satisfaction*. The management of some companies including Hewlett-Packard and IBM are emphasizing these points, but many others have not yet grasped that we are in a worldwide competition. About 90% of all products used here are subject to foreign competition. We need better manufacturing, quality and reliability engineering as well as marketing research. Our private sector management must be improved. *Engineers must participate*.
2. *Continuing Education of Engineers*: Industry must budget for the *maintenance of human technical capital*. Especially, electrical engineering changes so rapidly that continuing education is necessary to stay abreast of current technologies. We must *improve* the *utilization* of engineers, so that an engineer can use a greater part of his time utilizing his technical knowledge. This requires sufficient support by subprofessionals including technicians, tech writers, etc., and adequate facilities.
3. *Improvement of Engineering Education*: Many engineers feel unprepared for their jobs. Some schools still teach engineering on a narrow, disciplinary basis while in real life, the required knowledge is inter-disciplinary. For example, in semi-conductors, the demarcation between electrical engineering, chemistry, solid-state physics and advanced fabrication processes has practically disappeared. This needs to be reflected in the *structure and programs* of engineering schools. Since engineers work with other departments as well as the public, they must be able to *communicate effectively*. This is essential if more engineers are to become leaders in the shaping of policy in industry and government.
4. *Long-Term Civilian R&D by Industry*: About 70% of U.S. R&D is supported by defense. While important to national security, the Japanese and West Germans, as a percentage of GNP, spend more on non-defense research. Wealth, jobs and the trade balance are closely related to the amount and quality of non-defense research. Our industries must perform more long-term R&D in civilian products, services and process technology in order to improve the quality of life both here and in the rest of the world. Technology has improved and must continue to improve health, communications, environment, transportation, cost of energy and utilization of materials.
5. *Support for Engineering by the National Science Foundation*: The NSF by law must support both *science* and *engineering*. Historically, it concentrated on basic science. Its budget is about $1.5 billion. Grudgingly, within the last six years engineering increased to 10%. Its engineering research is not supportive of industry's new technologies. The needs of highly technical *industries* have outrun their support by the NSF. Our technological *competitiveness* is closely coupled to the *quality of our engineering research and talent*. Excellence in science is necessary but not sufficient. The NSF must improve the support of engineering research and education, resulting in new and better products and services.

(cont.)

Statements by Candidates for 1985 Executive Vice President

Statement by George P. Rodrigue

The IEEE is primarily a technical organization and has limited financial assets. Unlike a major corporation or government agency, the IEEE cannot hire full-time professionals to carry out most of its programs. However, the IEEE has enormous resources in its volunteer members, and its professional staff is best utilized to facilitate the voluntary actions of members. Our meetings and conferences are successful because interested and capable engineers volunteer both time and talents. Our publications are pre-eminent in many fields because reviewers, authors, and editors volunteer their efforts. In the professional area members write position papers, testify before government agencies, and lobby with local school boards, and the aggregate of individual member reputations has political power.

The IEEE has a good track record, but much remains to be done in making the engineering profession a rewarding life-long career. I believe that the IEEE Board of Directors should promote programs that foster collective and mutually supportive actions on the part of IEEE members. The program "Finding Your Way" that I successfully urged the Board to approve last year is one such example. This program builds its data base on the recommendations of technically qualified members, and will provide to IEEE members guidance on the best tutorial material available in a broad range of specific technical areas.

Programs in the professional area are also most successful when a heavy infusion of volunteer effort exists. I believe that part of the problem with the AAES is that it has no significant base of volunteer support. A true pooling of the knowledge and talents of engineers from various societies with common professional goals must be achieved. Top-down organizations rarely work on a voluntary basis.

Statement by Merlin G. Smith

It is an honor to be considered for the position of Executive Vice President. Participation in the Executive Committee and Board of Directors affords the opportunity to consider all the interests of the Institute. We are particularly interested in promoting efforts which foster interorganizational or interdisciplinal synergisms. These and other priorities are:

- Joint industry, government and university programs
- Cooperative activities between Society and Regional entities
- Collaboration amongst regional, technical and educational groups in the generation of affordable educational programs
- Conference services to an increasing number of members
- Publications to serve a broader member base
- Intersociety conferences and publications
- Individual-recognition programs
- Recognition of Engineering and Computer Science professions
- Responsible participation in societal and governmental forums
- An environment encouraging greater volunteer participation.

One of the specific functions of the Executive Vice President is to chair the Conference Board. As a founder and a current member of this Board, we can be effective in the brief one-year term of office. We also bring the experience as a past chairman of a major conference board, the National Computer Conference Board, chairmanship of the NCC, founder of the Compcon Fall series, and initiator of a number of workshops and meetings.

We have the support and encouragement of our employer, and we are prepared to give it a good effort.

COMPSAC84 ANNOUNCED – "This conference is in a new location this year," states the *COMPSAC84* Advanced Program. Already identified internationally as an outstanding conference, *COMPSAC* for *1984* boasts further improvements. The conference will be held at the *Americana Congress Hotel November 5-9*. On Michigan Avenue, overlooking Chicago's beautiful lakefront, the hotel is also near theaters, museums, stores, and restaurants in the downtown area. With the beautiful location and special discount rates ($39 Singles, $49 Doubles) in mind, "staying over" becomes an attractive alternative to commuting.

The conference provides a choice of four preconference tutorials: 1. *STRUCTURED TESTING* (November 5), by noted lecturer Thomas J. McCabe, presents techniques and methods that consistently improve reliability and maintainability across the spectrum of software projects; 2. *ADA™ PROGRAMMING LANGUAGE* (November 5), presents a survey of key language features, emphasizing the development of readable, maintainable, modular systems. The co-authors, Sabina H. Saib and Robert Fritz are both experienced practitioners from the Ada community; 3. *AUTOMATED REASONING: INTRODUCTION & APPLICATIONS* (November 6), by established researchers, Lawrence T. Wos and Ewing L. Lusk, uses a practical approach to develop an understanding of basic principles and stresses how to apply them successfully; 4. *PRINCIPLES OF COMMUNICATIONS NETWORK PROTOCOLS* (November 6), reviews the technical principles and performance issues of different protocol classes after describing various architectural models. The lecturer is the honored researcher and author, Simon S. Lam.

Four main conference tracks are identified for the attendees convenience: Distributed Computing System Software, Fundamental Issues of Software Development & Maintenance, Experience with Software Development & Maintenance, and Database Systems Applications & Software Standards.

For more information, contact: Charles P. Hollocker, COMPSAC84 Publicity Chairman • 901 Rolling Drive • Lisle, Illinois 60532 • (office) 312: 979-5823 • (residence) 312: 852-4263.

PLACEMENT SERVICE – The Chicago Section is now offering a Placement Service for its members free of charge intended for those who are Member Grade and above. If interested in any of the applicants listed below, call the IEEE office (236-4609) for their name and phone number. Applicants should call the IEEE office for instructions on listing. The IEEE and Electric Association waive any responsibility in determining the creditability, accuracy or qualifications of applicants or employers.

AL – Electrical Engineer - design or research & development gas discharge dev.
AM – EE with computer & Fortran compiler seeks full time Fortran progr. N-NW.
AN – Design Product Engineer - control systems, communications, microwave.
AO – Computer Hardware Engineer - digital circuit design.
AP – Spacecraft electrical design & test. - wire & connectors - EMC.
AQ – Cad/Cam entry level designer for the automotive related industry - 3 yrs. exp.
AR – Engineering Manager/Project Manager - industrial systems, power, controls.
AS – Control sys digital modl/estim highordr distrib noisy nonlinr EE & UC math.
AT – An entry level analog/digital circuit designer position; prefers hands-on situa.

IAS/IES TO SPONSOR SEMINAR – On Saturday - November 10, 1984 the Industry Applications Society/Industrial Electronics Society will sponsor a seminar entitled "Introduction to Variable Frequency AC Drives." State-of-the-art static variable frequency control technology will be described, including the latest high performance field oriented controllers. A brief review of AC motor theory will also be presented.

The seminar will be conducted by Dr. D. W. Novotny, Professor of Electrical and Computer Engineering at the University of Wisconsin at Madison. Dr. Novotny has been teaching at U of W since 1961 and has been Chairman of the Department of Electrical and Computer Engineering and is currently Associate Director of the university industry research program. Dr. Novotny's teaching and research specialties include electric machines, variable frequency drive systems and power electronics control systems. He is also active as a technical consultant to various companies such as Otis Elevator, Eaton Corporation and Allen-Bradley. He will be assisted by Daniel Kirschnen who is in the Ph.D program at the University of Wisconsin in Madison.

If you are interested in attending the seminar, contact Henry Dwyer at 937-7105 for more information.