

SCANFAX

March 1998

Volume 50, Issue 3



IEEE

A publication of the
Institute of Electrical & Electronics Engineers
— Chicago Section —



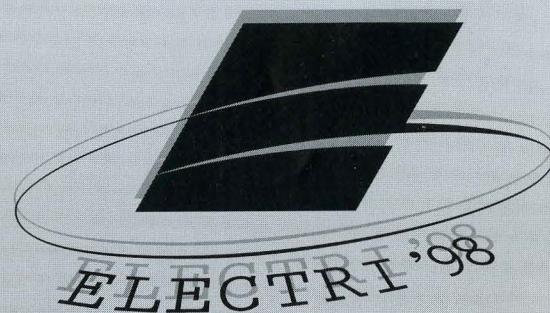
The Wireless Push Is On...

U.S. POSTAGE PAID
NON-PROFIT ORG
Permit No. 479
Columbus, Wisconsin

- Book Space Now
- Prime Space Available
- Enhanced Attendee Base
- 1 Complete Price Package, Including CONEXSYS Lead Retrieval System

For Details Call:

Toll Free: 1 (800) 392-7697
Phone: (630) 575-8045 Fax (630) 575-8049

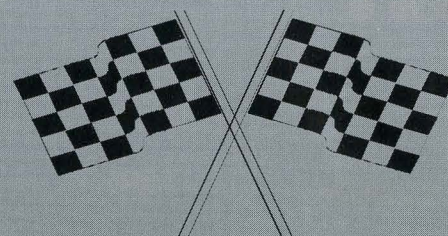


EXHIBITORS,

START YOUR

MARKETING

ENGINES



ELECTRI - 98

October 7 & 8, 1998

Rosemont Exposition Center, Rosemont, Il.



IEEE

A publication of the
Institute of Electrical & Electronics Engineers
— Chicago Section —

<http://ieeefnal.gov>

Chairman

Irwin C. Smiley, P.E.
CTE Engineers
303 E. Wacker Dr., Ste. 600
Chicago, IL 60601
312-938-0300
i.smiley@ieee.org

Editor

Adrienne Novick
ahnovick@lucent.com

Publisher

Barbara Slack
Slack Attack Advertising

Art Director

Nancy Rudd
Slack Attack Advertising

Advertising Sales

Beth Vander Grinten
Slack Attack Advertising
608-222-7630

Printed By

Town & Country Printers
Columbus, WI

SCANFAX (ISSN #0018-1297) is a monthly publication (except July and August) of the Chicago Section Institute of Electrical and Electronics Engineers, 1919 Swift Dr., Ste. 121, Oak Brook, IL 60521-1502, (800) 898-4333 or (630) 575-8045. It is published by Slack Attack Advertising, 6400 Gisholt Dr., Suite 203, Madison, WI 53713, (608) 222-7630. Printing is by Town & Country Printers, Columbus, WI 53925. For advertising information, contact Slack Attack Advertising.

Subscriptions included in IEEE membership dues; non-member subscriptions: \$25 per year.

Address corrections should be sent to the IEEE office, 1919 Swift Drive, Suite 121, Oak Brook, IL 60521-1502.

©Copyright 1998 by the Chicago Section Institute of Electrical and Electronics Engineers. Permission to reprint must be secured in advance of publication and credit given to author and SCANFAX.

March 1998

Volume 50, Issue 3

SCANFAX

Features

3 The Wireless Push Is On...

Wireless communications is one of the hottest topics of our time, from cellular phones to computer interconnectivity.

Departments

2 Chairman's Message

8 Calendar of Events

UPCOMING EVENTS

7 IEEE Chicago Section
ANNUAL AWARDS BANQUET / April 25, 1998

8 Power Engineering Society
A NEW PHILOSOPHY FOR PROTECTION DIAGNOSTICS,
MONITORING APPARATUS AND PROTECTIVE RELAYING
March 11, 1998

9 IEEE/EMB Chapter Research Center
MINI-NMR MACHINES / March 19, 1998

9 IEEE Reliability Society/Chicago Chapter
ACCELERATED STRESS TESTING / March 19, 1998

10 IAS/IES
HARMONIC EFFECTS WITH VARIABLE SPEED DRIVE—
IEEE #519 GUIDELINES / March 25, 1998

10 IAS/IES and Northwest Subsection
APPLICATION CONSIDERATIONS FOR HIGH VOLTAGE
VARIABLE SPEED DRIVES / April 22, 1998

10 IAS/IES
STAND-BY, CO-GENERATION, AND PEAK SHAVING POWER
APPLICATIONS / May 13, 1998

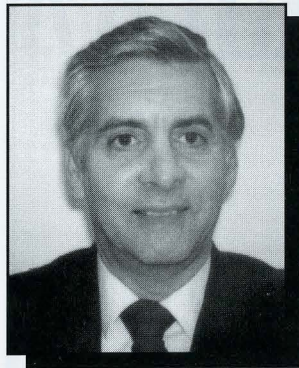
11 IEEE Chicago Computer Society Chapter and Fox Valley Sub-
section with Uniform and the Society of Women Engineers (SWE)
DISCOVERING THE INFERNO NETWORK OPERATION SYSTEM
March 25, 1998

12 Employment Opportunities

13 Professional and Business Directory

Statements or opinions expressed herein are those of the author's and not necessarily those of the IEEE Chicago Section, its members, officers, or staff, or the editors of this publication. Readers using any information or materials described in this publication do so at their own risk. In no event will IEEE Chicago Section, its members, officers, or staff be liable for any damages resulting from use of this material and hereby expressly disclaim such liability. The publication of any advertisement is not to be construed as an endorsement of the product or service offered unless the advertisement specifically states that there is such an endorsement or approval by the organization.

Chairman's Message



Irwin C. Smiley, P.E.

*IEEE Chicago Section
Chairman*

At the time of writing this column, the February SCANFAX was being printed and this March issue of SCANFAX was being developed. We are excited about the direction our magazine is taking, and are encouraged by the many phone calls and positive feedback we have received from IEEE members. Please remember, producing a quality publication such as this depends on the members. We continue to need your help!

As you will notice on page 6 of this magazine, we have included a request for feature story topic suggestions. What do you want to read about? Your ideas will help our editor and writer select topics for future issues of SCANFAX. Please give some thought to this and pro-

vide your ideas to us. You may also submit existing articles for consideration. The Chicago Section Executive Committee considers all suggestions.

Thank you to all those who have provided leads for advertising and to those who have placed ads in SCANFAX. Please continue to help us with advertising. If you have a lead or want to place an ad, call Slack Attack Advertising at 608-222-7630.

Chicago Section nominations for officers and committee chairpeople are listed on page 11 of this magazine. You will notice that there is one opening for the Publications Committee. The voting ballots will be in the April issue. Please remember to vote! Better yet, why not consider volunteering your time by attending meetings and taking an active role on our Executive Committee? We meet the second Tuesday of each month at the DeVry DuPage Campus at 7:15 p.m.

We are looking forward to the Annual Awards Banquet on Saturday, April 25th. We will honor the newly elected fellows, as well as present student chapter awards. Don't miss this great opportunity to meet your fellow engineers!

Finally, please take some time to read about the monthly chapter events and meetings that are being offered. These chapter meetings are the backbone of this grass roots society, and we appreciate your attendance.

Feel free to call me with your suggestions and feedback at 312-938-0300. I appreciate your input. ■

Chicago Section Executive Committee Meeting

March 10, 1998 @ 7:15pm

DeVry, 1221 N. Swift Rd., Addison, IL

Electri-Agency

123 King St., Elk Grove, IL 60007
847-439-5030 / 800-323-6575

www.electri-agency.com

— Representing —



Anaconda Seal-Tite

crescent
LIGHTING

a GENLITE company



For advertising
information, call

Beth Vander Grinten

**SLACK ATTACK
ADVERTISING**

608-222-7630

The Wireless Push Is On...

By Christine Sloat, P.E.



Remember the old Star Trek television show? Personnel on the "starship" all wore small triangular pins that allowed them to communicate, with just a touch, with other personnel, even the mainframe computer. Even today's "space" shows perpetuate this futuristic means of communications. Did I say futuristic? Not so in the 90's! Wireless communications is one of the hottest topics of our time, from cellular phones to computer interconnectivity. New paradigms of productivity... instant access, improved customer service, and convenience are all part of the push for wireless technology.

Face it... we live in an age of increasing demand for mobility. And that includes the ability to communicate and have timely access to information regardless of the location of the individuals or the information. In the medical community, remote access to medical records by a paramedic could save lives. For the military, information readily available to line soldiers could affect the outcome of military actions. For business, the interconnectivity of their computing activities can be paramount to their success for a variety of reasons. WANs, LANs, etc. give them connection, but "land-wire" resources limit capabilities and functionality.

Enter wireless communication technology as an answer to the mobility challenge. Such a simple solution—right?

Continued on page 4.

**New paradigms of productivity...
instant access, improved customer
service, and convenience are all
part of the push for wireless
technology.**

Not so, when one considers demand issues and rapid technological advancements that arise from numerous sources. The quagmire includes local versus wide area access, satellite options, standards, available bandwidth, inter-operability between equipment, even issues related to "backward compatibility," or to the layman - the "upgrade-ability" of existing systems to new technologies.

One of the major issues, actually a global one, is bandwidth. In a fall '97 issue of WirelessNOW, an internet "zine" dedicated to the topics related to wireless communication, technology writer Geoff Livingston gave an overview of the bandwidth issue. He relates that there exists a worldwide race to create high speed data capable systems, based on cellular/PCS technology, by the year 2000. The underlying need is to create a complete wireless system that can compete with all facets of the "wired" environment, and provide the mega-bandwidth necessary for the rapid expansion of the information highway. The Internet is growing at a phenomenal rate. Graphic laden text-based information has become a multimedia hit. Yet there is a big barrier for the multimedia World Wide Web (WWW) and other multimedia communications like real-time video: a shortage of bandwidth available in today's Global Information Infrastructure (GII). The shortage has proved a window of opportunity for wireless carriers and third generation cellular standards to enter into the bandwidth provision market.

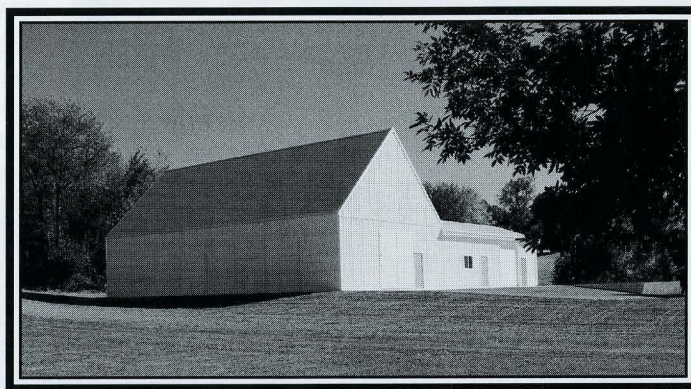
At this point, entirely "wired" solutions to the bandwidth shortage seem far from realization. Enter dedicated third generation wireless cellular services. Using a third generation service provider, multimedia users will be guaranteed dedicated bandwidth anywhere within the service provider's coverage area. Once a network is upgraded, the need for a personal wire to the curb will be over. Instead an antenna enabled third generation terminal will provide connectivity to the GII.

High speed data capable third generation systems will offer a broad bandwidth pipeline in addition to voice and low speed data. As part of the North American entry into the race, the Telecommunications Industry Association's (TDA) TR-45 Standards Committee convened in August of last year to discuss its IMT 2000 third generation cellular standards.

"There will be a future crossover from wireline development to wireless infrastructure," said John Marinho, TR-45 chair and technology director, wireless, Lucent Technologies. "A lot of what will happen in the future will be driven by the third generation standards," Marinho said.

The IMT 2000 third generation cellular standards have three main sets of criteria, based on CDMA standards. CDMA, or spread spectrum, allows multiple users to share the same frequency spectrum during the same time. Spread spec-

trum systems transmit information, using a unique code, or signature, for each individual transmission. This information contains patterns that are immediately recognizable by the intended receiver, allowing it to select the wanted transmission from the background noise. The IMT 2000 criteria includes a mobile data rate of 144 Kbits per second, a portable data rate of 384 Kbits per second and an in-building fixed data rate of two Mbits per second. With the new high two-way connectivity, wireless carriers can add a new weapon to their arsenal,



New Site Three at Genoa City, WI now open and ready to give you quick turn-around time.

Our third open field site is an enclosed, fully temperature controlled, ten meter facility for emission testing. It is similar to our second site but has a 10-foot turntable. With our additional site, we can once again provide you with the quick, efficient service you have come to expect from us.

D.L.S.'s sites also have the following extra benefits:

- Loading dock for semi's
- 10' x 10' oversized entrance door
- Fork lift
- Enlarged storage area for early deliveries
- 10' and 23' turntables
- Large variety of power capabilities
- Quick turn-around time
- Heated and air-conditioned facilities for your comfort



1250 PETERSON DRIVE
WHEELING, IL 60090-6454

Call 847-537-6400 today to schedule your testing needs.

Also visit our web site at <http://www.dlsemc.com>

positioning them to further compete with wireline carriers. "The third generation systems really focus on high speed data beyond 64 Kbit multimedia and Internet access," said Faye Vorick, manager of strategy and business operations, Motorola's Wireless Solutions. "This will bring about a new era of news, media and communications. Envision a paperless society where you have a wireless news reader. Every morning at three AM, your wireless reader downloads a business users paper. Then the business user wakes up and takes his reader with

him on the way to work. The user can continue to download video clips and a short news piece of something that happened in the world the previous day. Note: For access to the more detailed article from WirelessNOW and Mr. Livingston, point your web browser to http://www.commnnow.com/3rd_Generation.html.

On another front, IEEE approved standard 802.11 last June as a Wireless Local Area Network (WLAN) standard. It is comparable to the 802.3 standard for ethernet wired LANs. The goal of the IEEE

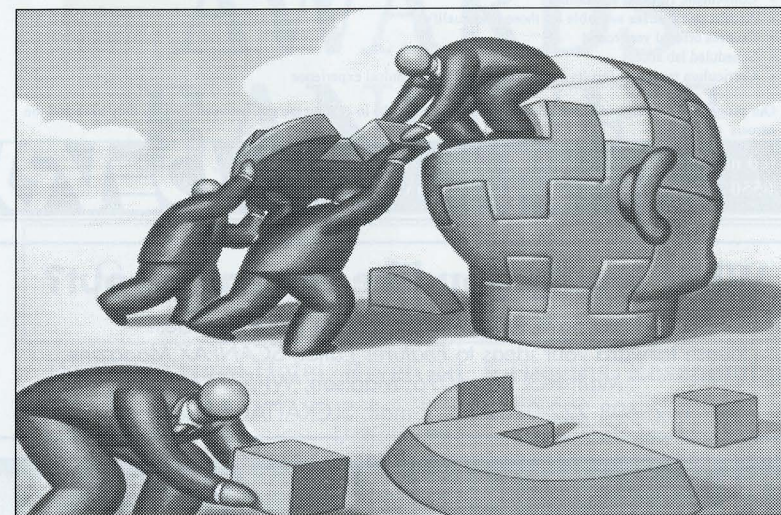
standard is to tailor a model of operation in order to resolve compatibility issues between manufacturers of WLAN equipment. The standard incorporates three different wireless technologies, including direct-sequence spread spectrum (DSSS), frequency-hopping spread spectrum (FHSS) and infrared technology.

The Media Access Control (MAC) portion of the 802.11 standard is composed of several functional blocks, including mechanisms to provide contention and contention-free access control. The functions within the MAC are independent of data rates or physical characteristics. The fundamental access method of the 802.11 MAC is known as Carrier Sense Multiple Access with collision avoidance, or CSMA/CA. CSMA/CA works by a "listen before talk scheme." This means that a station wishing to transmit must first sense the radio channel to determine if another station is transmitting. If the medium is not busy, the transmission may proceed. This scheme allows automatic medium sharing between several devices with compatible physical levels (PHY). This access method provides spectral efficiency as well as asynchronous data transfer. In contrast, CDMA schemes require bandwidth used by a modulation scheme.

The PHY under 802.11 includes dif-fused infra-red (DFIR), direct sequence spread spectrum (DSSS), and frequency hopped spread spectrum (FHSS). Both spread spectrum techniques are used in the 2.4 GHz band because of wide availability in many countries and lower hardware costs in comparison to the higher microwave frequencies.

Products based on 802.11 are expected to be available in the first quarter of 1998. However, vendors are still struggling with inter-operability issues. As with many things, the existence of a standard does not guarantee that products from different vendors will work in tandem, or otherwise. In response, several companies are forming alliances to ensure that their products work together.

A multi-vendor wireless LAN, based on FHSS technology, was installed as a test site at the University of New Hampshire, in Durham. Vendors involved in the program included Symbol Technologies Inc., Breeze



We solve all kinds of recruitment and training problems for all kinds of companies

DeVry. It's your one source resource.

Our Institutes of Technology turn out graduates who are highly skilled in a variety of fields: computers, business, telecommunications, electronics and accounting.

Our Keller Graduate School division produces skilled Masters level graduates in Business Administration (MBA), Project Management, Human Resource Management, and Telecommunications Management.

And Keller's Corporate Educational Services provides customized training to meet the managerial and technical

needs of companies like yours.

Our Becker CPA/CMA Review prepares individuals for certification in public and managerial accounting. Since 1957, over 210,000 CPAs have come from Becker's review course.

For more information, visit our Web site at <http://www.devry.com> or call the number that fits your needs.

DEVRY

A higher degree of success.®

DeVry/Addison
(630) 953-1300

DeVry/Chicago
(773) 929-7837

DeVry Inc.
www.devry.com

Becker CPA Review
1-800-868-3900 ext.94

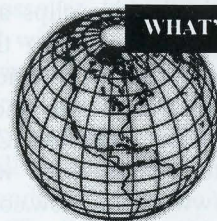
Keller/CES
(630) 571-1818

©1997 DeVry Inc. DeVry Institute, Keller Graduate School of Management and Becker CPA Review are separate operating divisions of DeVry Inc. (NYSE:DV). U.S. DeVry Institutes and Keller Graduate School of Management are accredited by the North Central Association of Colleges and Schools. 30 N. LaSalle Street, Chicago, IL 60602. 800-621-7440.

Continued on page 6.

Wireless Communications Inc., Raytheon Wireless Solutions and Netwave Technologies Inc. Aironet Wireless Communications is expected join the group in the near future. For DSSS, developers Aironet, Lucent Technologies Inc. and their OEMs are also working together toward product inter-operability testing.

To the futurist minded, the possibilities inherent in wireless technology are numerous and exciting. Yet, there remains, as with all things new and untried, a broad range of issues, constraints and differing tactics affecting technology and system outcomes. The wireless is both complex and challenging. The "devil is in the details," as they say. Consumer demand, in North America and around the world, will fuel the rush to inception of a wireless environment. Engineers and scientists, as developers of the technology, infrastructure and appliances, will be responsible for the details and will ultimately "take the credit" for both the progress and the glitches. Here's hoping that the system and components work as arrestingly as the concept. ■



WHAT'S STOPPING YOU FROM MOVING UP IN THE WORLD?

Have you been told that you would be a great candidate for a promotion but you need a bachelor's degree?

Getting the right education is critical to moving ahead in today's competitive environment. However boosting academic credentials while fulfilling personal and professional commitments is a challenge. Returning to class full time is just not possible for many adults.

DeVry, a leader in education for over 60 years, understands the needs of working adults. To meet those needs we have designed two degree completion options with you in mind:

- **Bachelor of Science in Technical Management**
Designed to help adults with technical associate's degrees develop their business knowledge
- **Bachelor of Science in Electronics Engineering Technology**
Designed to broaden the technical skills of adults with electronics associate's degrees

DeVry is sensitive to the needs of adult students

- day, evening and weekend options
- Convenient, flexible, scheduling
- Accelerated courses available for those who qualify
- Courses offered year round
- Scheduled lab access
- Curriculum taught by faculty with professional and technical experience

Our programs are designed to assist mature experienced adults in closing the gap between the jobs they have and the careers they want.

Get started moving up in the world by calling: Mike Bennett at 773.929.6550 or e-mail us at jsanchez@chi.devry.edu

DEVRY

What would you like to read about?

Do you have suggestions for future feature articles?
Please forward your ideas to *Features Editor, SCANFAX Magazine*.
Mail: P.O. Box 6096, Madison, WI 53716
Fax: 608-222-0262 E-mail: SLCKATTACK@aol.com



Weldy/Lamont & Associates

Manufacturers Representative
Engineered Products and Services

AC distribution equipment 600V thru 35KV (50 or 60Hz)

- Transformers
- Distribution switchgear
- Busway
- Automatic transfer switches (mechanical and static)
- Metering

DC power systems

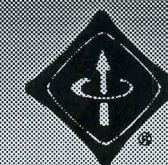
- Switching Controlled Ferro, Mag-amp and SCR rectifiers
- DC to AC inverters
- Free standing rack systems
- Batteries

Uninterruptible Power Supplies and Frequency converters

- Rotary and static type

Variable Frequency Drives

Weldy/Lamont Assoc., Inc. / 1008 East Northwest Hwy, Mount Prospect, IL 60056 / **847-398-4510**



IEEE Chicago Section

ANNUAL AWARDS BANQUET

Saturday, April 25, 1998

Westin O'Hare Hotel, River Rd. & Higgins, Rosemont, IL

Cocktails: 6:00 pm

Hot Hors d'oeuvres
Complimentary Cocktail
Dinner Music

Donations:

\$37.50 per person

Dinner: 7:00 pm

Appetizer, Salad,
Wine, Main Entree,
Coffee and Dessert

AWARDS

IEEE Fellow Awards
IEEE College/University
Student Chapter Awards

ENTERTAINMENT

Impersonator:

RICHARD ANDERSON

For Your Dining and Dancing Pleasure:

FRANK K. AND
COMPANY
ORCHESTRA

You may wish to form a group for a table of 10.

FOR TICKET INFORMATION CONTACT:

Joe Feitler
Ticket Chairperson
P.O. Box 5072
River Forest, IL 60305
(708) 383-8773 or IEEE Office: (800) 898-4333

Special dinners
available upon
request if
notified by
April 16, 1998.

ANNUAL AWARDS BANQUET

Our section's 1998 Annual Awards Banquet is planned for Saturday evening, April 25th, 1998 at the Westin O'Hare Hotel, River Road and Higgins, Rosemont, Illinois.

Right now, we still don't know how many new IEEE Fellows we will be honoring at this event — we promise to tell you as soon as we find out.

Due to the higher cost for the dinners we have to raise our banquet ticket price slightly from \$35.00 to \$37.50. But, we want to encourage our IEEE Student Branch/Chapter Members to attend by offering them reduced price tickets (at \$30) for themselves and their friends, spouses, or "significant others." ■

WANTED!!

We need more members for our Dinner Committee to help with the arrangements, as well as soliciting support (by telephone calls) from our sponsors so we can keep the ticket cost very low. Recent graduates are particularly welcome, but extensive professional experience will not be deemed a detriment! Please send e-mail to j.feitler@ieee.org or call our IEEE office at 800-898-4333. ■

Joe Feitler

Publicity and Ticket Chair,

1998 Awards Banquet Committee

Calendar of Events

DATE	EVENT
March 10, 1998	Chicago Section EXECUTIVE COMMITTEE MEETING
March 11, 1998	Power Engineering Society A NEW PHILOSOPHY FOR PROTECTION DIAGNOSTICS, MONITORING APPARATUS AND PROTECTIVE RELAYING
March 19, 1998	IEEE/FMB Chapter Research Seminar MINI-NMR MACHINES
March 19, 1998	IEEE/Reliability Society, Chicago Chapter ACCELERATED STRESS TESTING
March 25, 1998	IAS/IES HARMONIC EFFECTS WITH VARIABLE SPEED DRIVES—IEEE #519 GUIDELINES
March 25, 1998	IEEE Chicago Computer Society Chapter and Fox Valley Subsection with Uniform and the Society of Women Engineers (SWE) DISCOVERING THE INFERNO NETWORK OPERATING SYSTEM
April 22, 1998	IAS/IES and Northwest Subsection APPLICATION CONSIDERATIONS FOR HIGH VOLTAGE VARIABLE SPEED DRIVES
April 25, 1998	IEEE Chicago Section ANNUAL AWARDS BANQUET
May 13, 1998	IAS/IES STAND-BY, CO-GENERATION, AND PEAK SHAVING POWER APPLICATIONS

DINNER MEETING

James A. Jodice, V.P. Marketing, Doble Engineering

About the topic:

Technological advances in protective relays have been revolutionary and fast paced. Modern relays are complete protection systems requiring extensive configurations and setting procedures of up to 2,000 possibilities. Since protective relays are smarter, test procedures also need to be smarter. Testing the complete protection scheme using a power system model to create dynamic state simulations provides a much better understanding of scheme operation and requires far less out-of-service time.

About the speaker:

James A. Jodice received a BS degree in Electrical Engineering from Lowell Technological Institute in Massachusetts. He was manager of Tredyne Industrial Products prior to starting Jodice Controls in 1973. At Jodice Controls he developed the F-Series Protective Relay Test Equipment. Upon the sale of Jodice Controls to Doble

Engineering in 1978, Jerry joined Doble as Vice President of Marketing and is responsible for new product development and world wide marketing of Doble products and services.

Place:

Willowbrook Holiday Inn
7800 Kingery Highway (North of I55 on RT 83)

Time:

Social (Cash Bar): 5:30pm.
Dinner: 6:00pm.
Presentation: 7:00pm.
Questions: 8:00pm.

For reservations:

Cost for dinner is \$25.00
Please call the IEEE Business Office at (800) 898-IEEE, by Friday March 6, 1998, to make your reservation. London Broil will be the dinner entree. Please advise us of any special dietary needs when you make your reservation.

POWER ENGINEERING SOCIETY

A New Philosophy for Protection Diagnostics, Monitoring Apparatus and Protective Relaying

**Wednesday,
March 11, 1998**

IEEE/EMB CHAPTER RESEARCH CENTER

Mini-NMR Machines

**Advances in radio-frequency
coil design provide the basis
for a new generation of
smaller, less expensive,
and more sensitive nuclear
magnetic resonance
spectrometers.**

**Thursday,
March 19, 1998**

IEEE/RELIABILITY SOCIETY, CHICAGO CHAPTER

Jointly with the ASQ Chicago Section, and
the following IEEE Society Chapters:
Communications; Systems, Man, and
Cybernetics; Engineering
Management/Professional Communication;
Components, Packaging, and Manufacturing
Technology; Northwest Subsection; and Fox
Valley Subsection

Accelerated Stress Testing

**Thursday,
March 19, 1998**

EVENING MEETING

Dr. Richard L. Magin, Professor and Head, UIC Dept. of Bioengineering

About the topic:

Nuclear magnetic resonance (NMR) is one of the most information-rich methods available for chemical and biological analysis. Unfortunately, it is also one of the least sensitive analytical techniques commonly used by chemists and biologists. This fact limits the application NMR spectroscopy to relatively large microliter volume (micromole) samples. Recent advances in the design of small, sub-millimeter diameter solenoidal microcoils enable high resolution NMR spectroscopy to be carried out on nanoliter-volume samples with as little as 100 picomoles of material. This performance is well below the limits of detection of existing NMR systems and opens the way for new NMR applications in microspectroscopy, analytical chemistry, and NMR microscopy.

About the speaker:

Dr. Richard L. Magin is Professor and Head of the Department of Bioengineering at the University of Illinois at Chicago. Prior to joining the University of Illinois at Chicago, Professor Magin was with the Department of Electrical Engineering and Computer Science at the University of Illinois at Urbana-Champaign.

(UIUC). At UIUC he was director of the Magnetic Resonance Engineering Laboratory in the Beckman Institute of Advanced Science and Technology.

Dr. Magin has been involved in developing RF coils, contrast agents, and interactive pulse sequences since the first MRI system was installed in Illinois in 1985.

Location:

The seminar will be held in ERF 1043 of the University of Illinois at Chicago (842 W. Taylor Street.) Parking will be available at the UIC parking garage (Halsted and Taylor Streets.) The first 40 guests will receive passes for free parking.

Time:

Pizza and other refreshments will be served starting at 6:00 PM. Dr. Magin's talk will start at 6:30 PM.

For information/reservations:

People wishing to join us for pizza or wanting any further details about the meeting should contact John Trimble, Ph.D., Program Chair (jtrim@interaccess.com.) by March 16. Tel: 630-505-5722. Fax: 630-505-1986

DINNER MEETING

Gary M. Hazard, Lead Reliability Engineer, Tellabs Design Technologies Group, Lisle, IL

About the topic:

This presentation will focus on the steps necessary to conduct a successful Accelerated StressTest. The basic principles of AST, including how to generate an effective AST plan, setup and configure the test, carry out the test, and interpret the results.

Place:

Wyndham Garden Hotel, 1200 North Mittel Blvd., Wood Dale, IL. Exit I-355 (IL53) at Thorndale Road, go east two miles and turn left onto Mittel Blvd. (Don't go to the Wyndham Hamilton Hotel, which is on Thorndale Road immediately east of I-355.)

Time:

Social (Cash Bar): 5:30pm.
Social Hour (Cash Bar): 6:00pm.
Dinner (\$17): 7:00pm.
Presentation (free): 8:00pm.

For reservations:

Dinner entree: Chicken Sesame or Top Sirloin Beef Brochette or Vegetarian. The \$17 dinner cost includes gratuity. Make your reservation and choice of entree by no later than noon, Monday, March 19, 1998. Call IEEE message desk at 800-898-IEEE.

For more information

Call Ed Walbridge, Reliability Analysis Associates, Inc., 708-445-0117, reliability@nidus.com. Bring a friend.

IAS/IEEE

Harmonic Effects with Variable Speed Drives—IEEE #519 Guidelines

Wednesday,
March 25, 1998

IAS/IES JOINT MEETING WITH NORTHWEST SUBSECTION:

Application Considerations for High Voltage Variable Speed Drives

Wednesday,
April 22, 1998

IAS/IES

Stand-by, Co-generation, and Peak Shaving Power Applications

Wednesday,
May 13, 1998

IAS/IES DINNER MEETINGS

Paul Finlayson, Engineering Manager—Drive Division, Siemens Energy and Automation

About the topic:

An informative presentation discussing the IEEE #519 Guidelines on harmonics created by variable speed drives and their effect on sources and loads.

About the speaker:

Mr. Paul Finlayson received his B.E. degree in Electrical Engineering from the University of Saskatchewan in Canada. Upon his graduation he joined Westinghouse Electric in Buffalo, New York where he held various positions from System Engineer to Manager of Drive Development. During this time he was mainly involved in the design

and development of power electronics for industrial drive applications. He joined Siemens in 1983 as Engineering Manager for their Drives Division where he is responsible for the design and application of both AC and DC drives. During his career he has applied for four patents and authored several IEEE/IAS papers.



About the dinner meeting format:

Each dinner meeting features an informative presentation on an electrical or electronic application topic of interest to the members of the organization, as submitted to the Executive Board. The topics are presented by industry professionals as application experts in that chosen field. The presentations are followed by open forum discussions on the topic. The dinner meetings start with an information social hour where individuals can socialize with fellow industry professionals followed by the dinner and the presentation.

Location:

Como Inn, 564 N. Milwaukee Ave, Chicago, IL

Directions: The Como Inn is located on Milwaukee Avenue just off the expressway on the east side of 90/94.

Time:

Social: 5:30pm.
Dinner: 6:00pm.
Presentation: 7:00pm.

For reservations:

Cost: \$20 includes the presentation and your choice of chicken or pasta for dinner. Please call the IEEE Business Office at (800) 898-IEEE or (630) 575-8045 with your entree preference.

NOTE: Attendance at IEEE Technical Meetings is acceptable as one PDH (Professional Development Hour) per meeting, where continuing education is required for renewal of the P.E. licenses.

NOTE: Elections for the IEEE, IAS/IES Executive Board will take place in June. We encourage all interested parties to contact the IEEE Business Office for details.

IEEE CHICAGO COMPUTER SOCIETY CHAPTER AND FOX VALLEY SUBSECTION WITH UNIFORM AND THE SOCIETY OF WOMEN ENGINEERS (SWE)

Discovering the Inferno Network Operating System

Wednesday,
March 25, 1998

SUBMITTAL INSTRUCTIONS

IEEE Chicago Section Committee and Chapter announcements should be submitted electronically by email to scanfax@ieee.fnal.gov. The body of the email must contain the text of the announcement in plain ASCII text. Do not send attachments. Please fax a hardcopy of the announcement to 608-527-5941. Announcements are due by the 25th of two months preceding the month of the event.

Feb. 25, 1998 for the April issue.

March 25, 1998 for the May issue.

April 25, 1998 for the June issue.

EVENING MEETING

Dr. Olivier Clarisse, Lucent Technologies

About the topic:

When engineers replace a complex and overloaded structure by a small, simple and effective substitute—a breakthrough happens—such is the case with the Inferno Network Operating System.

As history shows, Bell Laboratories has facilitated many breakthroughs. Lucent Technologies first insures these new approaches work, and then applies them to its telecommunication systems. Lucent has started applying Inferno in developing secure network computing and application distribution solutions.

Dr. Clarisse will talk about the key aspects of the Inferno system and its companion language called Limbo. He will give examples of Inferno's capabilities in recent application development projects.

The Inferno/Limbo system is ready to provide to communication systems what UNIX/C has provided to computer systems. Inferno Release 2.0 delivers tomorrow's full-featured operating systems today and achieves tremendous simplification over today's computing and communications technologies.

Dr. Clarisse will also compare Inferno/Limbo with similar systems such as the popular Java Programming Language and how it complements Inferno/Limbo.

About the speaker:

Dr. Olivier Clarisse is a Distinguished Member of Technical Staff at Lucent Technologies. He joined the

Lucent Inferno Joint Venture in the Inferno Server Solutions group in August 1997.

He now leverages the next generation network operating system to deliver full-featured applications on tiny devices.

He published several articles describing visual software assembly systems, participated in the authoring of a book, organized and chaired several workshops, has been invited speaker at conferences and universities. He is the president of the Association of Lisp Users, a member of the IEEE, ACM, Sigma-Xi, and SEE, SIESE (France).

Place:

Lucent Technologies, 2000 N. Naperville Rd., Naperville, IL 60566. Lucent Technologies is located at the northwest corner of Warrenville and Naperville Roads. When you enter the building, company security will provide you with a visitor's badge and direct you to the meeting place.

Time:

Networking/Social: 7:00pm.
Presentation: 7:30pm.
Presentation is free.

For reservations:

Please call the IEEE business office at 1-800-898-IEEE.

For more information:

Contact Krish Krishnamachari at (630) 713-7193.

Chicago Section Nominations 1998-1999

OFFICERS:

Chairman
Sam Peach

Vice Chairman
Howard Penrose

Treasurer
Ed Bogus

Secretary
Pat Murphy

COMMITTEES:

Awards Norm Phoenix	Program Weider Yu
Conference Judy Gemperline	Publications open
Finance Chuck Nochumson	Special Events Frank Lakowski
Government Activities Bert Orszula	Student Activities Peter Look
PACE John Waters	

Employment Opportunities

Nationwide engineering firm is expanding its Chicago office. We are seeking both entry level and experienced **ELECTRICAL ENGINEERS** to assist us in our growth. Must have BSEE and excellent communication skills. PE or EI would be a plus.

Experienced Electrical Engineer position requires background in 480-volt power distribution for motors, equipment, and lighting systems integral to water, wastewater, commercial, and transportation projects. Experience in SCADA controls and instrumentation systems is helpful.

We offer an attractive salary, professional growth potential, immediate ESOP eligibility, no-interest computer loans, and other outstanding benefits. If you are interested in working with a dynamic, professional team, send your resume to:

Consoer Townsend Envirodyne Engineers, Inc.
303 E. Wacker Drive, Ste. 600
Chicago, IL 60601
Attn: Human Resources, Dept. S.A.
Or fax to: (312) 938-1109

EOE

M/F/D/V

SR. MANUFACTURING ENGINEER (Group Leader)

Motorola Lighting (MLI) is a premier designer/producer of electronic ballasts for fluorescent lighting located in Buffalo Grove, IL. We're looking for an engineer to join our small, dynamic and growth-oriented business!

BS in Engineering with 5-10 years of management experience required. Must be technically knowledgeable in PCB assembly process for mixed technology products and all SMD products and familiar with new product introduction processes. Motorola is an EEO/AA employer. Please fax your resume.

Motorola Lighting (MLI)
FAX (847) 215-6513

ELECTRICAL ENGINEERS

Multi-disciplined E/A firm in Chicago is seeking electrical engineers with minimum 5 years experience in power distribution, lighting and special systems for commercial, industrial and transportation projects. Must have good communication skills and AutoCAD or Microstation experience.

We offer professional growth potential, an excellent compensation package and benefits including 401K. Qualified candidates are encouraged to submit their resumes in confidence to:

McDONOUGH ASSOCIATES

Attn: L. Maggio
180 North Stetson Avenue - Suite 3300
Chicago, Illinois 60601
No telephone inquiries.
EOE/M/F



SALES ENGINEER

Established 65 year old manufacturer of products for the electric utility industry worldwide seeks a technical person to market and sell our products. Regional sales territory available will include customer development and sales rep management. Travel is required. Position could be entry level with electrical background preferred. Position offers substantial opportunity with growing company. Located in the Chicago area, company offers medical/dental, 401(k), vacation. Mail or fax resumes to:

President
P.O. Box 45
Deerfield, IL 60015
fax (847) 945-9391

Your Employment Opportunity ad run in two consecutive issues of SCANFAX for one low rate. Don't miss this opportunity.

Call 608-222-7630.

*For advertising
information contact:*

**Beth Vander Grinten
SLACK ATTACK
ADVERTISING**

**P.O. Box 6096,
Madison, WI 53716**

**PHONE
(608) 222-7630**

**FAX
(608) 222-0262**

Professional and Business Directory

Support these fine businesses that support **SCANFAX**.



ARCHIBALD & HAMEL, INC.
Manufacturers Representatives
537 Wrightwood Ave., Elmhurst, IL 60126
Tel: 630-833-7377
Fax: 630-833-6279
E-mail: ahijefc@aol.com

Automatic Switch Company



CHICAGO DISTRICT SALES OFFICE
2500 W. Higgins, Suite 1165
Hoffman Estates, IL 60195
TEL: (847) 885-1800
FAX: (847) 885-0800

Consoer Townsend Envirodyne Engineers, Inc.

303 East Wacker Drive, Suite 600 • Chicago, Illinois • (312) 938-0300

a professional consulting services firm...

✓ **Transportation Engineering** ✓ **Environmental Engineering**
✓ **Site Engineering** ✓ **Water/Wastewater**
✓ **Construction Management** ✓ **Industrial & Hazardous Waste**
✓ **Architecture** ✓ **Solid Waste & Resource Recovery**



Transportation Engineers

411 South Wells Street, Suite 800, Chicago, IL 60607

Tel (312)922-1700 Fax (312)922-3311



JOSE DE AVILA AND ASSOCIATES
MECHANICAL AND ELECTRICAL ENGINEERS

6611 W. North Ave. Suite 101 Oak Park, Illinois 60302-1005
(708) 383-3030 Fax (708) 383-5971



LEE BUTTER & ASSOCIATES
ELECTRICAL MANUFACTURERS REPRESENTATIVES

1125 W. LUNT AVE. PAGER (630) 255-4340
ELK GROVE, IL 60007 RES (630) 837-0733
847/437-7600 (800) 323-1802
FAX (847) 437-7609

LEHMAN COMPANY

Electrical Manufacturers Representative

PHONE: 630-942-1900 FAX: 630-942-1955



Line Associates, Inc. Lighting Design
Complete Lighting Design Services
State of the Art 3-D CAD and Graphics Systems
Layouts, Specifications, Control Systems,
Multi-Axis Photometry Plots, Energy Evaluations,
Calculated Color Renderings, Project Supervision
Telephone (630) 834-4993 Fax (630) 834-4864
World Wide Web www.LineAssociates.com



Panatrol Corporation

• Engineered Process Control Systems
• Data Acquisition
• Electrical Design
• Color Graphics
• Control Panels
UL LISTED / CSA CERTIFIED
7481 SOUTH SAYRE AVENUE
BEDFORD PARK, IL 60638
24 HOUR PHONE:
(708) 496-3080
FAX (708) 496-0426



Planned Lighting, Inc.

REPAIR • MAINTENANCE • ENGINEERING

3223 North Western Avenue PHONE: 773-296-0999
Chicago, Illinois 60618 FAX: 773-296-0009
E-MAIL: www.plannedlight.com



S&C ELECTRIC COMPANY

Specialists in High-Voltage Switching and Protection

Arthur T. Eagen

Chicago Sales Office Telephone: (847) 266-1912 • Fax: (847) 266-1910
E-mail: aeagen@sandc.com • Web Site: www.sandc.com

T&D Products, Inc.

Manufacturers Representatives - Transmission & Distribution Electrical Equipment

10 South Riverside Plaza, Suite 756
Chicago, IL 60606

Phone: (312) 258-4310
Fax: (312) 258-4314

ABB Power T&D Company

ABB Control

Shallbetter Inc.

Cyberex Inc.

Technibus

Byram Labs

*Transformers, Switchgear, Breakers, Relays
Capacitors, Harmonic Filters
MV Capacitor Banks, Enclosures
UPS Systems, Static Transfer Switches
Bus Duct Systems
Meters, Transducers, Signal Conditioners*



Leader in Power Switching Since 1923

Providing a complete line of transfer switches
and custom tailored power control systems



Worldwide Headquarters
830 W. 40th St
Chicago, IL 60609 USA

Call us at
773 247-6400 or
visit our website at
www.zenithcontrols.com



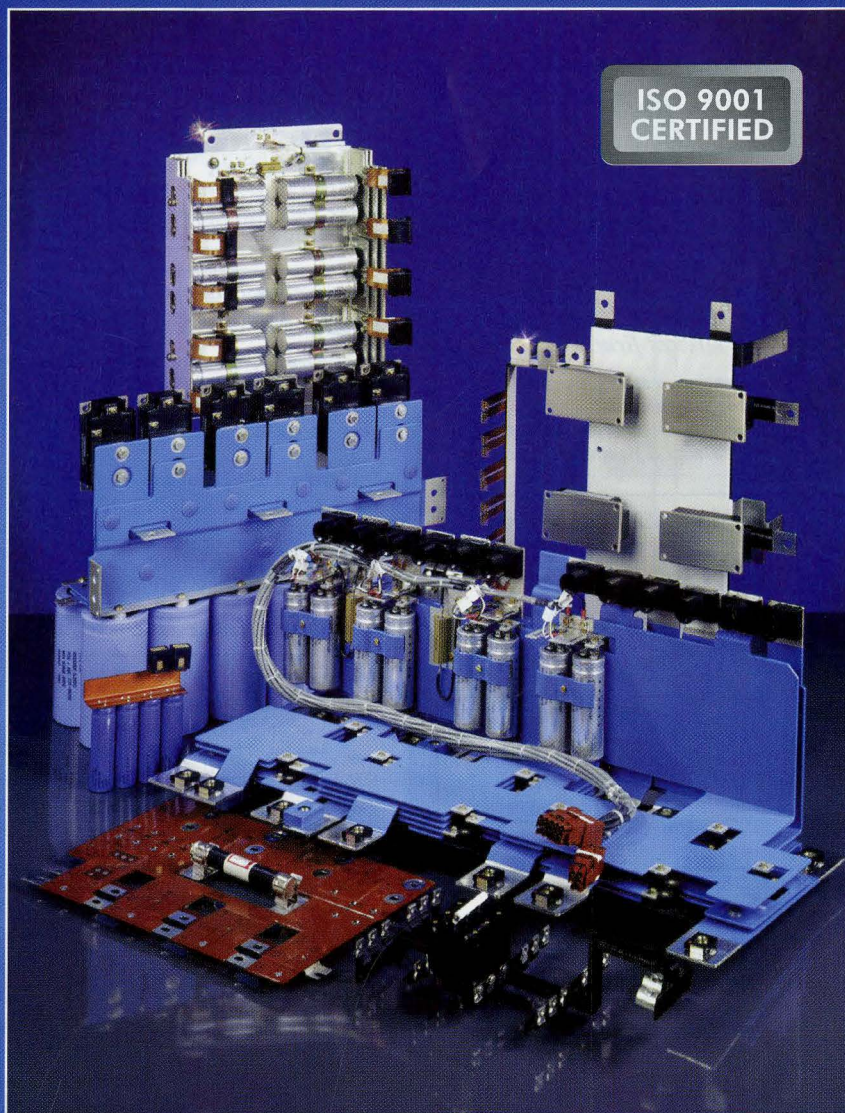
IEEE

Advertisers Index

DeVry, Inc.	5
DeVry Institute of Technology	6
DLS Electronic Systems, Inc.	4
Electri-Agency, Inc.	2
Electric Association.....	IFC
Methode Electronics.....	BC
Weldy/Lamont Associates, Inc.	6

Bus Bar Solutions

Achieve high performance power distribution by combining Methode's Power Bus Technology with your IGBT Modules and power electronics.



Take advantage of the benefits our technology provides:

- Compact, efficient and reliable voltage delivery and power control
- Lower inductance path for high current Insulated Gate Bipolar Transistor modules (IGBTs)
- Reduce transient voltage
- Maximize flux canceling
- UL and CSA registration available on IGBT assemblies
- Lower total system cost
- Discrete component design or complete assembly packages are available

Our high quality laminated and epoxy coated bus bars are manufactured in our fully integrated, ISO 9001 certified facility.

Give us a call. We have some powerful ideas for you.

 **METHODE ELECTRONICS, INC.**

*Network Buss Products —
The Leader in Power Bus Design and Production
with over 30 years of bus bar experience*