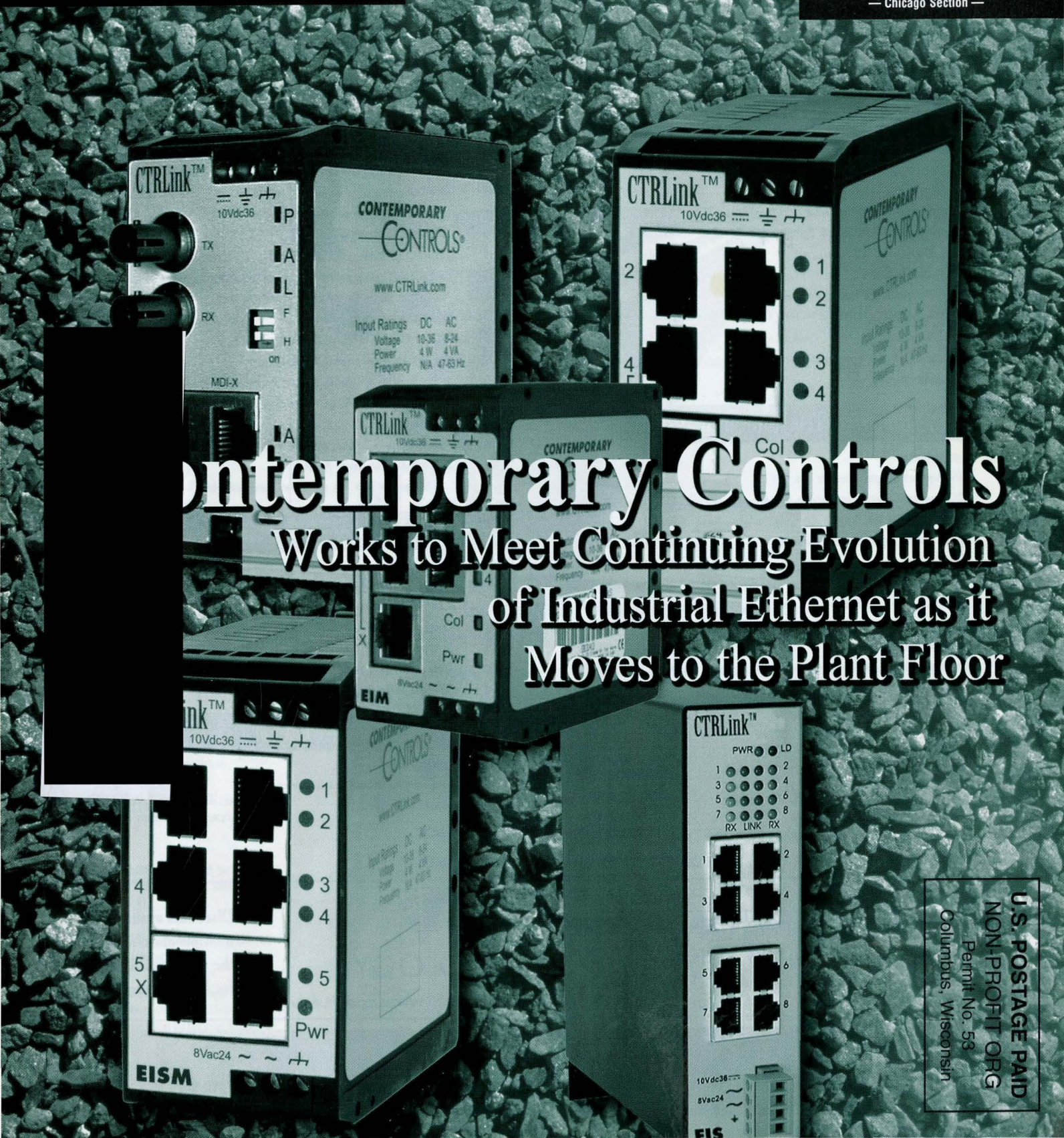
SCANFAX

March 2002
Volume 54, Issue 3

IEEE

Chicago Section Website:
www.ewh.ieee.org/r4/chicago

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



ontemporary Controls

Works to Meet Continuing Evolution of Industrial Ethernet as it Moves to the Plant Floor

U.S. POSTAGE PAID
NON-PROFIT ORG
Permit No. 53
Columbus, Wisconsin

IEEE
Chicago Section:
www.ewh.ieee.org/r4/chicago

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

Chairman
Pat Murphy, E.E., P.E.
Phone 312-733-7000 ext. 6805
Fax 312-432-7118
E-mail: patmurphy@IEEE.org

Editor
Gerry Ryan
Phone 708-445-7537
Fax 708-445-7538
E-mail: mondoryan@aol.com

Published for IEEE by Slack Attack Communications

Publisher
Barbara Slack

Advertising Sales
Beth Vander Grinten
Phone: 608-222-7630
E-mail: bethv@slackattack.com

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, 8196 Cass Ave., Darien, IL 60561, (800) 898-4333 or (630) 493-4333. It is published by **Slack Attack Communications**, 5113 Monona Drive, Madison, WI 53716, (608) 222-7630. Printing is by **Town & Country Printers**, Columbus, WI 53925. For **advertising information**, contact Slack Attack Communications.

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

Address corrections should be sent to the IEEE office, 8196 Cass Ave., Darien, IL 60561.

Meeting notices should be sent to graphics@slackattack.com

SCANFAX

March 2002
Volume 54, Issue 3

Feature

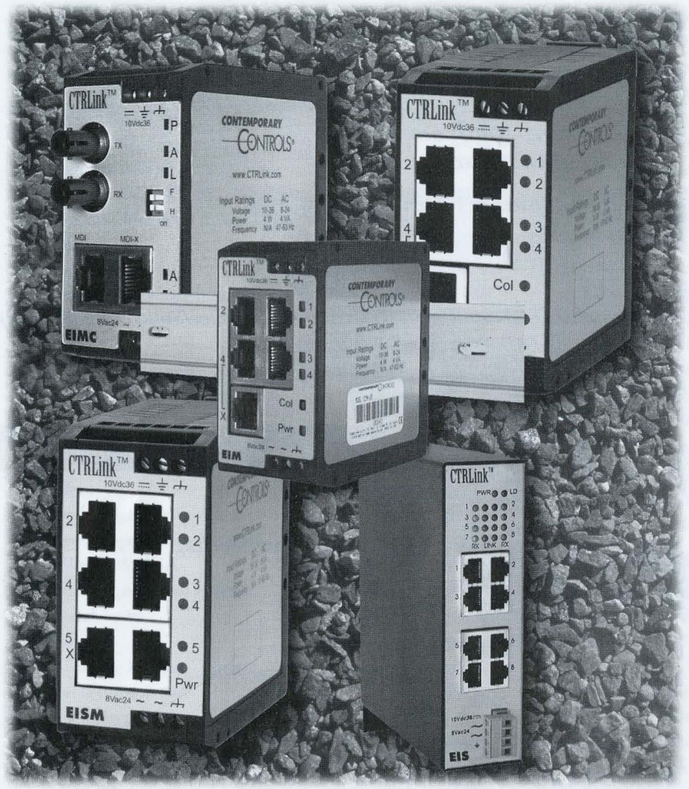
Upcoming Events

Departments

On the cover: photos courtesy of Contemporary Controls

CHICAGO SECTION EXECUTIVE COMMITTEE MEETING
Tuesday, March 12, 6:30 pm
DeVry DuPage, Room TBA, 1221 N. Swift Rd., Addison, IL
No Registration Needed

Contemporary Controls Works to Meet Continuing Evolution of Industrial Ethernet as it Moves to the Plant Floor



By Sandy Ryan

For the past several years, an older technology has been gaining ground within the industrial community. As an established commercial technology, Industrial Ethernet (IE) use at various control levels has increased due to office popularity and as an enterprise network for high-end controllers. Ethernet technology also offers a low cost way to achieve good connectivity and allows simple upgrades to higher speed networks.

Contemporary Controls (CC) of Downers Grove defines IE as technology compatible with the IEEE 802.3 family of standards, but designed and packaged for the requirements and rigors of commercial and industrial applications. In some applications it can be valid to maintain that low-cost commercial off the shelf (COTS) devices can be used in industrial control systems. Because requirements differ from office use to process factories or process plants, commercially available Ethernet chips and media need to address concerns such as high temperature, humidity and vibration. Another concern is convenient mounting with other control equipment in the same control panel.

Other differing requirements include power source, electromagnetic compatibility and regulatory safety approvals. These requirements can vary from application to application, for example, a factory may require an industrial control panel approval while a building automation system may need a smoke and fire approval rating.

Some say fieldbus wars have ended as the IE has become more standard but CC sees a different aspect of IE, viewing it as a data link technology with several physical layer variants. With increasing interest in Internet connectivity bringing IP to light as the de facto network protocol and TCP the de facto transport layer protocol, there still remains no universal agreement on the application layer with several implementations in use including EtherNet/IP, Modbus/TCP, iDA, PROFInet and Fieldbus Foundation HSE. Because IE cannot address all industrial applications, CC foresees continued use of fieldbuses and the need for fieldbuses to connect to IE becoming more important.

CC has introduced a new line of products called CTRLink that can operate with these implementations and plans exist for gateway products to link legacy fieldbus networks to some of the application layer protocols.

"CTRLink is an evolving line of Industrial Ethernet hubs, switches, media converters, routers, gateways and adapters that are required when implementing an Ethernet network in an industrial or commercial environment," said George Thomas, president of CC. "These products have been hardened for use in industrial and commercial automation systems where typical office grade equipment is impractical or cumbersome to install. They are compliant to the industrial emission and immunity standards (EN50081-2) and (EN50082-2)."

Contempary Controls' research is directed toward simplifying the deployment of networking technologies to automation.

The products are packaged in miniature or standard-size CTRLink enclosures and provisions exist for redundant power sources so that a CTRLink product will continue operating after a primary power failure. Products operate from a wide-range, low-voltage AC or DC power source and DIN-rail mounting makes installation quick and easy.

The product line was developed through an ongoing partnership between CC and Heyfra Electronics of Eisleben, Germany.

"We took our ideas apart, piece by piece," Thomas said. "Through open dialogue and well thought-out design, our sole focus was to provide products with the customer in mind."

That focus has been a mainstay at CC, whose history began in 1975 as Thomas began the business with his own savings. The company started out with Thomas and his wife and after about one year another employee was added. The company currently includes about 28 employees in Downers Grove, 3 in the UK at Contemporary Controls Ltd and 4 in China at Contemporary Controls (Suzhou) Co., Ltd. Thomas said employment growth will come from China and a joint venture CC is working on in Germany with Contemporary Controls GmbH & Co KG which will be operational in 2002.

Thomas' first project included a microcomputer-based Computing Ratiometer for low-speed, high-resolution speed draw measurements in a textile application for Johnson and Johnson. Several years later he found he could speed the development of custom applications by implementing a series of bus boards based on the Intel 8080 architecture, eventually converting these proprietary designs to the emerging STD-BUS standard.

Relocation to Downers Grove and the path to establishing itself as an electronics manufacturer came after a 1983 customer request to develop a system of distributed STD-BUS microcomputers connected with ARCNET to facilitate a LAN-based newspaper pre-processing system.

CC soon became known as one of the leaders in ARCNET technology and the development of its first web site helped spur international sales growth—a base that became more than 30% of its total sales.

The company today concentrates on ARCNET, CAN and IE. It produces a fieldbus extender for DeviceNet and Smart Distributed System as well as gateway and routers to the Internet. Another unique part of CC is its ability to manufacture its own parts. CC is able to build-to-order or build-to-stock and production alterations can be made to meet changing demands.

CC's research is directed toward simplifying the deployment of networking technologies to automation. Its customer base has grown to nearly 600 and shows diverse applications through embedded networking technology.

CC supplies Johnson Controls in the building automation industry; serves several General Electric divisions including medical, transportation, drives and turbines; and Lockheed Martin's Distribution Technologies for manufacture of postal sorting equipment.

Thomas said the biggest challenge CC has faced regarding IE has been market competition and open standards relating to the technology.

"We are not alone in this market," Thomas said. "The other problem we have is keeping the price differential between Industrial Ethernet and Commercial Ethernet narrow enough so a customer will elect to pay the difference in price for the robustness and convenience of Industrial Ethernet although functionally, the commercial product will work as well. That is the problem with open standards. By complying with the requirements of an IEEE standard, there is a risk that your product will be considered a commodity. You need to communicate your distinctive features to the customer in order to gain a share of the market. It is very difficult today to drive a proprietary standard in this market especially for small companies. You need to follow the standard but add value wherever you can."

CC is working to meet that challenge by working with its partner Heyfra to co-develop common designs and research available technologies.

"In this way we leverage our technical resources while assuring that our products will have worldwide appeal," Thomas said. "In order to reduce manufacturing costs, we will attempt to globally source components in order to obtain the lowest cost. Finally, we use automated electronics assembly methods within our facility to speed production and improve our responsiveness to customers and, if necessary, we are prepared to have products manufactured in our Chinese facility once it is operational."

Thomas said the impact of Internet connectivity in the industry would be an ongoing evolution both in the industry and within CC.

"Customers are attempting to reduce costs by converting their traditional fieldbus communication systems to IE in order to achieve a convenient connection to the Internet. While the Internet offers remote troubleshooting, instant production data reporting and improved supply chain management, it does create many risks such as reduced security. These issues need to be resolved if this trend is to continue. We see our company active in this area; however, many of the required products have yet to be defined. Like everyone else, we are learning too."

Technical information provided by Contemporary Controls

LUNCH MEETING

Chicago Chapter of the IEEE Power Engineering Society

PES Distinguished Lecturer Series: Planning of FACTS Devices in a Deregulated Utility Environment

Wednesday, March 20, 2002

Dr. Ram Adapa, Electric Power Research Institute

About the Topic:

Transmission systems are becoming increasingly stressed because of growing demand and because of restrictions on building new lines. However, most high voltage transmission systems are operating below their thermal rating due to such constraints as stability limits. EPRI is pioneering FACTS technology to make it possible to load lines at least for some contingencies up to their thermal limits without compromising system reliability. In order to understand what is required of the FACTS controllers, EPRI has initiated several FACTS system studies with various utilities. These utilities include Southern Company Services, Florida Power & Light, New York Power Authority, Minnesota Power, Commonwealth Edison, Tennessee Valley Authority, Public Service Electric & Gas, San Diego Gas & Electric, Western Area Power Administration, ENEL (Italy), and PPGC (Poland). This presentation summarizes findings of these studies. Also, a brief description of the EPRI's software packages, which are being used in these studies, will be presented.

Before making any decisions on a new technology such as FACTS, system study is the first step that is undertaken by the electric utilities to perform both technical and economic evaluations. In this regard, EPRI has been in the forefront by initiating more than fifteen system studies with different utilities to evaluate possible application of FACTS controllers. Electric utility industry-wide accepted computer software is needed to perform these system studies. EPRI has developed the most comprehensive packages such as PSAPAC (Power System Analysis Package) and EMTP (Electro-Magnetic Transients Program) with detailed models for FACTS controllers. EPRI's software has been used by many utilities while performing these system studies.

FACTS technologies are offering competitive solutions to today's power systems in terms of increased power transfers, improved system damping, and better system control. The application of FACTS devices are very much system dependent. The simulation of detailed power system models as well as FACTS device models in a production grade program such as ETMSP was found to be necessary to evaluate the complete benefits of FACTS technologies. It is important to consider both technical and economic considerations while evaluating FACTS options.

About the Speaker:

Ram Adapa (radapa@epri.com) received his Ph.D. in Electrical Engineering from the University of Waterloo, Ontario, Canada.

Dr. Adapa joined the Electric Power Research Institute (EPRI), Palo Alto, California in June 1989. At EPRI, he is currently the Technical Leader for Increased Power Flow activities in the Transmission & Substation Asset Utilization target of the Power Delivery Product Sector. In this capacity, he is responsible for developing and managing the project portfolio in the area of increased power flow.

Previously, Dr. Adapa worked as Manager of Power System Planning, in the Grid Operations and Planning Business Area of the Power Delivery Group at EPRI. He managed the WSCC (1996) Outage Study, Electro-Magnetic Transients Program (EMTP), IRP Workstation (EGEAS), FACTS System Studies, Harmonic Analysis Software (HARMFLO), and several other expert systems projects. His areas of interest include FACTS, Phasor Measurements, Grid Operations, Grid Planning and Grid Reliability.

Prior to joining EPRI, he was a Staff Engineer in the Systems Engineering Department of McGraw-Edison Power Systems (presently known as Cooper Power Systems), Franksville, Wisconsin. At McGraw-Edison, he was involved in several digital and analog studies, which included transient, harmonic, and insulation coordination studies performed for electric utilities.

Dr. Adapa is a Senior Member of the IEEE Power Engineering Society, member of the DC Transmission subcommittee of the Transmission and Distribution Committee, member of the System Planning Subcommittee of the Power System Engineering Committee, chairman of the IEEE WG 15.05.02 - Dynamic Performance and Modeling of HVDC Systems and Power Electronics for Transmission Systems, individual member of CIGRE, and past chairman of the local IEEE Santa Clara Valley PES/IAS chapter. The IEEE Power Engineering Society Santa Clara Valley Chapter elected him as the 1997 Outstanding Engineer. He is a Registered Professional Engineer in the State of Wisconsin.

Location:

Chicago Bar Association, 321 South Plymouth Court (Near Jackson & Dearborn), Chicago, IL 60604

Time:

11:30 AM Social
12:00 PM Lunch (optional)
12:15 PM Presentation
1:00 PM Adjourn

Reservations:

Lunch tickets can be purchased in the lobby bookstore ($11.00). Please call the IEEE Business Office at (800) 898-IEEE to make your reservation.

For more info, visit the Chicago Chapter IEEE PES web site: www.ece.iit.edu/~flueck/chicago_pes/

EVENING MEETING

IEEE-IAS/IES Dinner Presentation

Hazardous Areas

Wednesday, March 20, 2002

Al Engler, EGS Electrical Group, ECM Division

About the Speaker:

Education: BSEE, University of Minnesota. *Present Position:* EGS Electrical Group, ECM Division, Director of Quality. Member of National Electrical Code Panel 14, which covers Hazardous (Classified) Locations, representing the International Society for Measurement and Control (ISA). Member of the U.S. National Committee to International Electrotechnical Commission (IEC) TC 31, which covers electrical equipment in hazardous areas. U.S. Technical Advisor to IEC TC 31H, which covers flammable dust, and member of TC 31A, which covers flameproof enclosures, and TC 31G, intrinsic safety. Member of ISA SP12, which covers electrical equipment in hazardous areas. Member of subcommittees for explosionproof enclosures - ISA SP12.22, intrinsic safety - ISA SP12.2, nonincendive electrical equipment - ISA SP 12.6, increased safety equipment - ISA SP12.16, and seals for flammable process fluids - ISA SP12.27. Chairman of ISA SP12.10, subcommittee on flammable dust.

About the Topic:

A comparison of NEC Article 500 Hazardous (Classified) Locations, Classes I, II, and III, Divisions 1 and 2 to Article 505 Class 1, Zone 0, 1, and 2 Locations. Cover methods for providing a safe electrical installation in various Hazardous locations will be presented.

NEW Location:

Athena Restaurant, 212 S Halsted St., Chicago *Located in Greektown on Halsted between Adams and Jackson.* ***For March only.***

Time:

5:30 PM Social
6:00 PM Dinner
7:00 PM Presentation

Cost:

Your cost includes the presentation and a five-course dinner with a Greek Roasted Chicken and Lamb entry. (Vegetarian or special dietary meals available upon request). Cost is $25 IEEE Member, $10 IEEE Student Member and $30 non-member. Valet parking is included with your meal.

Directions:

See www.iaschicago.com for a map.

Reservations:

Please call IEEE at (800) 898-IEEE or at www.iaschicago.com. *Note: For P.E. licenses that require continuing education for renewal, attendance at IEEE Technical Meetings is acceptable as one Professional Development Hour (PDH) per meeting.*

EVENING MEETING

ED/CAS/SSC (Electron Devices/Circuits and Systems/Solid State Circuits)

A Mixed-mode ESD Protection Circuit Simulation-Design Methodology for Design Prediction

Thursday, March 21, 2002

Dr. Albert Wang, Illinois Institute of Technology

About the Topic:
ESD (Electro-Static Discharge) induced failure becomes a major IC reliability problem as semiconductor IC technologies migrate into the VDSM (very-deep-submicron) ULSI (ultra large scale integration) regime. On-chip ESD protection circuitry is required. Particularly, ESD design for mixed-signal & RF IC is a new challenge to IC designers. Currently, trial-and-error approaches still dominate in ESD design practices, largely due to the lack of predictive ESD simulation capacity. This talk will outline the principles of ESD protection circuit design and discuss a new mixed-mode ESD simulation-design methodology developed at IIT's Integrated Electronics Laboratory. Practical ESD protection circuit design examples will be provided. This lecture aims to assist working IC circuit designers in dealing with real-world on-chip ESD protection circuit design problems. Those who are interested in more details are referred to a short course, ECE723 advanced ESD Protection Design for Integrated Circuits, offered by the Department of Electrical and Computer Engineering at the Illinois Institute of Technology.

About the Speaker:
Dr. Albert Wang received his PhD degree in Electrical Engineering from the State University of New York at Buffalo in 1995. After working for National Semiconductor Corporation, Santa Clara, CA, as a Staff R&D Engineer, he joined the Faculty of the Department of Electrical and Computer Engineering, the Illinois Institute of Technology in 1998, where he directs the Integrated Electronics Laboratory. His research interests center on analog, mixed-signal, RF and SoC ICs, advanced on-chip ESD protection circuits, IC CAD and advanced semiconductor devices. His academic records include more than fifty papers and one book. Dr. Wang is a Senior Member of IEEE, an IEEE Solid-State Circuit Society Distinguished Lecturer and an IEEE Electron Device Society AdCom member.

Time:
7:00 PM Social (Free Sandwiches, Snacks, and Beverages)
7:30 PM Presentation

Location:
Motorola Schaumburg Campus
1301 Algonquin Road
Enter Campus using Gate A, westmost gate off Alqonquin Road, west of Meacham. Door 13 is under Motorola sign on west face of six story building. Preregistration is required.

Reservations:
Please call the IEEE Message Center at (800)898-4333 or (630)493-4333 by 1PM Tuesday, March 19th. For information, call Norm Phoenix at (847)523-1078.

North Shore Radio Club Hamfest

The NS9RCfest

Sunday, March 24, 2002

About the Topic:
Electronic equipment, amateur radios, computers, components and accessories will be featured at the NS9RCfest (formerly known as LAMARSfest), Sunday March 24. This annual giant Hamfest is sponsored by the North Shore Radio Club and is attended by amateur radio operators and electronic engineers and computer hobbyists from all over the Midwest. It is a great place to find bargains and to make professional and hobby connections.

NS9RCfest also features commercial exhibitors, amateur radio licensing testing (from 9 AM to noon), information displays and hourly prize drawings. North Shore Radio Club President Jacob Fishman, Northbrook, says " Come on out and find a good deal, see the equipment and learn new applications of wireless and computer technology. This is an excellent opportunity to locate a missing part, instruction manual or connector. You will be able to purchase technical equipment, or take a ham radio license test. It is a good time to meet friends, learn about employment opportunities, hire technical specialists, check out collectibles, buy or sell and just have fun."

Time:
8:00 AM -2:00 PM

Location:
Lake County Fairgrounds
Rtes. 45 and 120, Grayslake, IL

Information:
Admission to the event is $5 for a double-stub prize ticket in advance or $6 for a single-stub prize ticket at the door. Seller's tables are $15 and up. Parking is free. Tickets and tables can be ordered on-line at www.lightwriters.com/nsrc/NS9RCfest.htm

To learn more, call 847/291-4160; check www.ns9rc.org or contact us on 147.345 MHz (107.2 PL) or 442.075 MHz (114.8 PL) for ticket and table forms and more info.

IEEE Chicago/Rockford Consultants Network Meeting

"Time to Fly Solo?"

Monday, March 25, 2002

About the Topic:
In addition to networking and sharing leads and referrals, there is usually a guest speaker. On March 25, instead of a speaker, we plan to continue the open discussion started at the January meeting on "Time to Fly Solo?" based on the article by Dr. Stuart G. Walesh in the Summer 2001 edition of The Bent of Tau Beta Pi. It is recommended that you request a copy of the article to review prior to the meeting by sending your e-mail request to harvey.beta@att.net

Is Your Job Security Fading? Is the corporate bureaucracy getting you down? Are you increasingly concerned about how much you work and how little you earn? How about how hard you work and how little you learn? Are you tired of talk about pay for performance? Are you stagnating intellectually? Do you want autonomy? Do you increasingly think, 'I could do it better?' Are you retired but still 'have the itch?'

Then maybe now is the time to 'fly solo' to go out on your own - to start a sole proprietor, individual practitioner, or free-lance consulting business that builds on your experience and vision. Remember, you go around only once.

'Going out on your own' as a consulting engineer is a major undertaking. As part of your 'go or no go' decision, you should consider many factors. Four of the most important ones are: reasons to consider flying solo, characteristics of successful sole proprietors, marketing and the possibility of failure.

Meetings are usually held on the last Monday of odd-numbered months.

Time:
6:15 PM Dinner
7:30-9:00 PM Meeting

Location:
Dinner: Bakers Square, 270 E. Northwest Highway and North Court, just south of the library.

Meeting: Palatine Public Library
700 North Court, Palatine, IL, two blocks from Bakers Square.

Reservations:
Members and non-members are invited to join us for the optional informal dinner and meeting. We order individually from the menu. (Reservations are NOT required)

Information:
Information about the network can be obtained by e-mail: g.l.blank@ieee.org or visit our web site at www.drblank.com/coaction.htm. See you on MARCH 25, 2002, and bring consultants and those who aspire to be consultants for a pleasant and informative evening of networking.

IEEE EMC Society Chicago Chapter

EN 50191-The Latest in Safety Testing Protection

Tuesday, March 26, 2002

Dwayne Davis, Associated Research, Inc., Technical Services Manager

Objectives:
EN 50191 is a new European Norme standard that explains how to set up and operate a safe electrical test workstation. EN 50191 was implemented in Europe on March 1, 2001. Any other national standards in Europe that contradict this standard have to be withdrawn by October 1, 2002.

About the Topic:
EN 50191 is about protection against electrical shock. This presentation will cover what the standard requires, and what methods can be employed to meet this new standard. EN 50191 covers virtually every aspect of setting up a safe work station.

About the Speaker:
For over 30 years Dwayne has been involved in the design, development and manufacture of many high voltage products. Dwayne has extensive field experience having done customer seminars and presentation at industry gatherings. In addition, Dwayne has published 11 articles on product safety testing. He is a recognized expert in the field of electrical safety testing and its application.

Location:
D.L.S. Electronic Systems, Inc.
1250 Peterson Drive
Wheeling, IL 60090

Directions:
http://www.ewh.ieee.org/soc/emcs/chicago/

Time:
6:30 PM Social Hour
7:00 PM Meeting Start

Reservations:
Carla Robinson (U.S. Robotics)
Phone: 847-537-6400

This meeting was orignally scheduled for January 16 and was cancelled due to weather.

IEEE EMC Society Chicago Chapter

IEEE EMC Society-Chicago Chapter meeting dates are listed below. Please stay tuned to our web site for meeting topics, locations, and guest speakers.

NEW Meeting start time is 7:00 PM. Social Time is 6:30 PM.

www.ewh.ieee.org/soc/emcs/chicago/

March 26, 2002 Chapter Meeting
April 17, 2002 Chapter Meeting
May 21, 2002 Mini-Symposium

ATTENTION

IEEE Chicago Section Chapter Chairmen

Increase the attendance at your chapter meetings by including a meeting notice in SCANFAX.

INSTRUCTIONS

MEETING NOTICES, SCHEDULES

Step 1: Submit copy via e-mail to: graphics@slackattack.com. Text should be sent in the body of the e-mail *not* as an attached file. Please include "notice" in the e-mail subject line.

Step 2: Fax a confirming hardcopy of the notice to: **608-222-0262.**

If e-mail is not an option, contact Amy Pierquet or Beth Vander Grinten at Slack Attack Communications, 608-222-7630.

EVENING MEETING

Chicago Chapter of the IEEE Power Engineering Society

Power Engineering: Career Advice for the Young Engineer

Wednesday, March 27, 2002

Panel Session - Industry Representatives

About the Topic:
The "Careers in Power Engineering" session will relate power engineering to motors and drives, software companies, computer companies, engineering firms, industrial applications, and electric utilities. Electrical professionals will provide college students with advice on various engineering topics including: selecting the right electives; making time for a co-op; keeping up with the technology; honing communication skills; pursuing advanced degrees; and finding the right mentor.
Students: Bring your resumes to include in our IEEE/PES career program book!

About the Speakers:
Moderator & Coordinator:
Angeline S. Schaefer
Senior Project Electrical Engineer, OWP&P Engineers, Electrical

Northwestern University, Evanston, BSEE, 1986

Chair/Student Liaison of IEEE-PES, Chicago Chapter, 2000-2001, aschaefer@owpp.com

Sponsor:
Power Engineering Society, Chicago Chapter

Engineers:
Edwin C. Lennox, P.E.
Management Consultant, Arthur Andersen

Business Consulting University of Illinois, Urbana/Champaign, BSEE 1990, MSGE 1992, MSEE 1997 University of Chicago, MBA, 1998

Recipient of the 1997 Grainger Award for Power Engineering Excellence

Paul Bearn, P.E.
Project Electrical Engineer, OWP&P Engineers

Pennsylvania State University, University Park, Pennsylvania, BSEE

The Lake Forest Graduate School of Management, Lake Forest, Illinois, MBA

Clifton Muhammad
Energy Consultant, Deloitte Consulting

Illinois Institute of Technology, Chicago, BSEE, 1987

University of Chicago, MBA, 2001

IEEE/PES Member:
Maureen Barrera, Electrical Engineering, Junior at UIC, OWP&P Engineers, Electrical Designer, mbarerra@owpp.com

UIC/IEEE Officers 2002:
President: Dawn Fuller; **Vice-President:** Ben Wu; **Treasurer:** Preetha Thomas; **Secretary:** Jhoanna Conde; **Public Relations:** Grigoriy Titiyevskiy; **Tech Projects:** Iyaz Khan; **Web Manager:** John Olenczuk; **Senior Advisor:** Omar Shamsi; UIC/IEEE Website: http://www.ece.uic.edu/~ieee

Location:
University of Illinois - Chicago, Chicago Circle Center (CCC), Rathskellar, (Parking: Halsted/Taylor Parking Structure - HTPS), Chicago, IL

Directions:
UIC's web site www.uic.edu/depts/avcad/eastmap.htm has a map of campus.

Time:
4:30 PM Free Refreshments
4:30 PM Main Speaker
5:00 PM Topic Careers and Q&A with Students
5:30 PM Mixing with Power Engineers
6:00 PM Adjourn

Information:
For more information, please visit the Chicago Chapter IEEE PES web site: www.ece.iit.edu/~flueck/chicago_pes/

Illinois Institute of Technology's Center for Professional Development offers Non-Credit Short Courses

Through its new Center for Professional Development, Illinois Institute of Technology (IIT) now offers more than 150 non-credit short courses (1-4 days) in areas such as engineering, computing, Internet, manufacturing, biotech, energy and environment, leadership and management, and more. Designed to be of broad interest to professionals, short courses do not require application or admission to the University and most do not have prerequisites. They are offered on campus at IIT or on-site at a company.

The Center also responds to requests for courses, so if courses of interest aren't on the schedule, the Center is happy to hear of suggested topics and courses. Of the 150+ topics listed on the CPD Short Course website, most can be offered at a company location; contact Ruth Sweetser, Director of Professional Learning and Business Relations at 630-682-6010 about details.

The Spring, 2002 schedule of non-credit short courses includes courses of interest to engineers, managers, scientists and computer professionals. Examples in Engineering and Manufacturing include Introduction to Reliability Engineering; Advanced Techniques for Monitoring of Batch Processes, Quality Control and Fault Diagnosis; Fundamentals of Power Electronics; and New Product Development; and many more.

In the areas of Computer, Internet and Telecommunications, offerings include courses such as Asymmetric Digital Subscriber Line I and II; Applied Network Security; ASP Databases; and Web Site Development and Administration. Courses in Energy and Environment and Leadership/Management are also on the schedule. A complete schedule is available at www.cpd.iit.edu.

Students may enroll online at www.cpd.iit.edu/shortcourse/register. ■

ADVERTISER INDEX

PROFESSIONAL AND BUSINESS DIRECTORY

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

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.

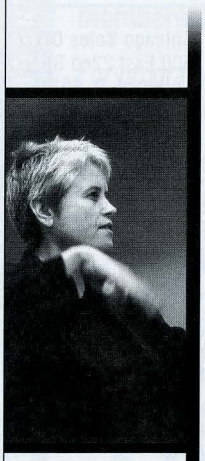
If you are interested in working with a dynamic, professional team, send your resume to:

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

In graduate study at Elmhurst, you'll

learn more.

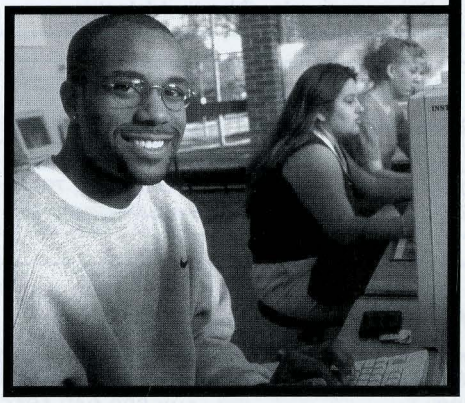


Master of Science in Computer Network Systems

Our master's program in computer network systems provides professionals with state-of-the-art technical knowledge and a lot more. You will learn the ins and outs of WANs, LANs, Visual BASIC, distributed databases, VB script, Active Server Pages, and client server systems. You also will sharpen your communication skills, develop your management competencies, and explore the ethical issues of a fast-moving profession.

Elmhurst takes a distinctive approach to graduate study. We keep classes small, so each student works closely with our talented faculty. What's more, because you go through the entire program in cohorts, you will gain team-building experience and build a key professional support network.

All classes are scheduled part-time, in the evening. Challenging, innovative, intensely practical: at Elmhurst, you will get more than a master's.



Elmhurst College

More than a master's...

For information or to arrange a campus interview, call us at (630) 617-3030, or e-mail us at gradadm@elmhurst.edu. The College is located at 190 Prospect Avenue, Elmhurst, Illinois 60126.