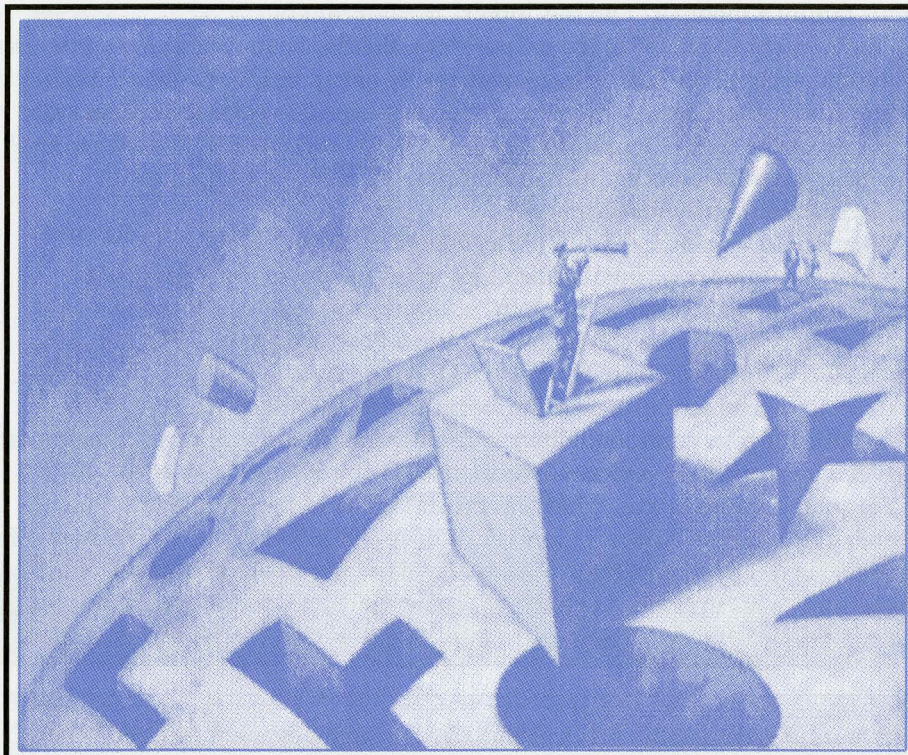




Scanfax

Institute of Electrical & Electronic Engineers  Chicago Section Newsletter

MARCH 1996



**Chicago Chapter of the Communications Society
Technical Panel Discussion on "Software Patterns"**

University of Illinois at Chicago

March 28, 1996

Chairman's Message

GREETINGS!

MEMBERSHIP SERVICES SPOUSE OR FAMILY?

Is your spouse an IEEE member? Is another member of your family a member? Did the "other" in your family drop membership because of the cost of dues, the duplication of society interests, the volume of mail, the lack of local availability of career involvement, the lack of meaningful local programs, the emergence of the need to establish career incentives, or the lack of employer support of membership and of dual careers? Is the other possible member full time employed, perhaps setting aside membership for family involvement?

What about workforce reduction as a membership reduction issue? Retirement, voluntary or involuntary, generates needs for your time that membership cannot continue to retain.

We would like very much to gain insights. Postcards are OK.

- Mail to IEEE, 2460 Wisconsin Ave., Downers Grove, IL 60515.

- E-mail can be sent to ieechi@aol.com, or to j.sherman@ieee.org.

Please indicate your confidentiality requirement(s). If you volunteer to help with a survey questionnaire, we have awards.

For your circumstances, what was critical to deciding who became the member and who the Affiliate Member or dropped membership? IEEE may offer a different arrangement so that spouses can take the career advantages of full membership with the choice to have or not have duplication of Spectrum and Society Transactions. It is the membership longevity that helps careers.

INVESTMENT RECOVERY?

A second membership services initiative is the investment recovery plan. Members invested money (dues) and time (Transactions and Journals). If you know of someone who has dropped membership, or are considering dropping out, consider two items - tell us how we can help you continue or recover your investment, and how we can recover your colleague(s).

For the record, these issues will occupy this writer after July. The Chair tour ends there, and returning to Membership Services is the prospect. IEEE as investment and training is the issue. If the name is not on the forthcoming ballot, do this prospect a favor and write it in.

Regards,

Jack Sherman, IEEE Chicago Section Chair - j.sherman@ieee.org; ieechi@aol.com



In This Issue:

- > **IEEE Power Engineering Society**
March 13, 1996
Generator Protection Using Digital Technology Page 5
- > **IEEE Antennas and Propagation/Microwave Theory and Techniques Society**
March 14, 1996
*Feasibility Studies of a Compact Short Wavelength
Free Electron Laser Based on MM-Wave LINAC*..... Page 7
- > **IEEE Chicago Section**
March 21, 1996
*Status of High-Performance
Computing in the World Automotive Industry* Page 9
- > **IEEE Communications Society**
Technical Panel Discussion on "Software Patterns"
March 28, 1996..... Page 10 & 11
- > **IEEE Computer Society - UIC Student Branch**
*Pitfalls of Assessing High-Performance Computing
for Scientific and Engineering Applications*
March 22, 1996..... Page 13
- > **IEEE Industry Applications/Industrial Electronics Society**
March 27, 1996
*Power Generators: Roundtable Discussion
Regarding Application and Selection*..... Page 15
- > **IEEE Fox Valley Subsection**
March 27, 1996
*Micromachines: Microfabrication of
Silicon for Fluid System Miniaturization*..... Page 17
- > **IEEE Components, Packaging and Manufacturing Technology Society**
Seminar on Flexible Circuits: Materials and Design
March 29, 1996..... Page 19

Chicago Section Executive Committee Meeting

March 12, 1996 • 7:15 PM

DeVry • 1221 N. Swift Road • Addison, IL

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SUBMITTAL DEADLINES
Articles for May '96 Scanfax due March 28.
Articles for June '96 Scanfax due April 25.
Submit articles to Editor.

TO PLACE AN ADVERTISEMENT
Call the Chicago Section Business Office at 800/898-4333.



INSTITUTE OF
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IEEE CHICAGO SECTION ANNUAL AWARD BANQUET

Saturday, April 27, 1996

Starlight Inn
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COCKTAILS: 6 P.M.

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Complimentary Cocktail
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DONATIONS:

\$35.00 per person
Table Prizes

DINNER: 7 P.M.

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

IEEE FELLOW AWARDS

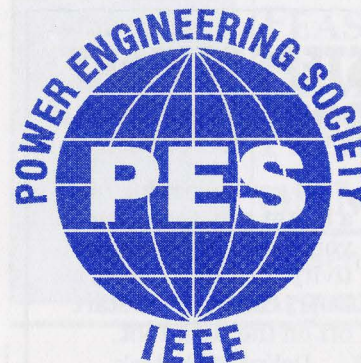
Richard B. Dyott of Andrew Corporation
Wayne C. Luplow of Zenith Corporation
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Tables of Ten Available
Special Meals on Request



GENERATOR PROTECTION USING DIGITAL TECHNOLOGY

Presented by
Charles Mozina of Beckwith Electric

Wednesday, March 13, 1996

ABOUT OUR TOPIC

Generators require protection against both short circuits and abnormal operating conditions. This presentation will outline the advantages and disadvantages which must be addressed in using digital technology to provide such protection. It will cover both applications on new generators as well as using this technology to upgrade older machines. Benefits include: space, cost, flexibility, communications, system integration, self-testing and oscillographic capabilities. Disadvantages to overcome include: lack of redundancy and unfamiliar technology.

ABOUT OUR SPEAKER

Chuck Mozina is currently the manager of Application Engineering for Protection & Protection Systems at Beckwith Electric Company in Largo, FL. He has more than 25 years of experience as a protective relay engineer and manager of Centerior Energy, a major investor-owned utility in Cleveland. He is active in IEEE Power System Relay Committee and is Past Chairman of the Rotating Machinery Subcommittee. He is also the U.S. Representative to the CIGRE working group on generator protection.

PLACE

Chicago Bar Association
321 S. Plymouth Court
Chicago, IL (Near Jackson and Dearborn)

TIME

Social 11:30 AM
Lunch 12:00 PM
Presentation 12:30 PM

NOTES

Lunch tickets can be purchased in the Chicago Bar Association Shop on the first floor for \$8.50.

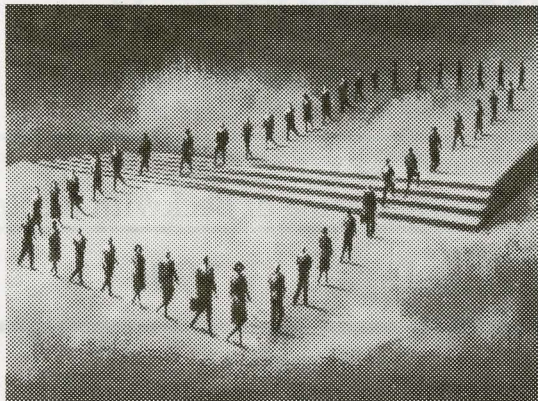
FOR RESERVATIONS

Please call the IEEE Business Office at (800) 898-IEEE to make your reservation no later than noon, Monday, March 11th.

FOR FURTHER INFORMATION

Contact Sam Peach at (815) 942-2920 x3866.

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FEASIBILITY STUDIES OF A COMPACT SHORT WAVELENGTH FREE ELECTRON LASER BASED ON MM-WAVE LINAC

Presented by Dr. Alireza Nassiri of
Argonne National Laboratory

Thursday, March 14, 1996

ABOUT OUR TOPIC

Short wavelength FELs impose stringent requirements on the quality of the electron beams. The key factor in obtaining a single-pass short wavelength FEL is the generation of small beam emittance electron beams with ultra-high brightness. The pioneering work at the Los Alamos National Laboratory on RF photocathode source has demonstrated the potential use of such a device for production of high quality intense electron beams for the 4th generation of light sources and the next linear collider application. In this paper we present a feasibility design study for a 300 nm FEL based on deep x-ray lithography process known as LIGA (Lithography, Electroforming, and Molding). This system will consist of a photocathode RF gun operated at 30 GHz, a 50-MeV superconducting constant gradient accelerating structure at 60 GHz, and a microundulator with 1-mm period.

ABOUT OUR SPEAKER

Dr. Alireza Nassiri is a Physicist at Advanced Photon Source, Argonne National Laboratory. He played a key role in the design, construction and testing of a 60 MeV electron LINAC test-stand and was in charge of commissioning the test stand which is now used as an injector for the APS 250 MeV electron LINAC. In the RF group, he initially worked on the design and feasibility studies of mm-Wave, 50 MeV LINAC for production of short wavelength synchrotron radiation based on microfabrication techniques.

PLACE

Motorola Schaumburg Campus
Building 1301, Door Location 13
1301 Algonquin Road, Gate A
Schaumburg, IL

TIME

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

FOR RESERVATIONS AND DIRECTIONS

Please call the IEEE Business Office at (800) 898-IEEE to make your reservation no later than noon, Tuesday, March 12th. Please leave your phone number with the office. They will provide you with directions and admittance procedures.

CANDIDATES FOR OFFICE OF THE EXECUTIVE COMMITTEE FOR THE 1996 - 1997 TERM

Ballots for the annual election of the Chicago Section will be included in the April issue of Scanfax. The Nominating Committee offers the following candidates for your consideration:

Executive Officers

Chairman	Tom Jurgens
Vice Chairman.....	Irwin Smiley
Treasurer	Sam Peach
Secretary.....	Howard Penrose

Standing Committee

Awards	Carl Kannewurf
Conference	Ed Bogus
Government Activities	Bert Orszula
Member Services.....	Jack Sherman
Professional Activities.....	John Waters
Program.....	Don Harris
Publication	Vacant
Special Events.....	Frank Lakowski
Student Activities.....	Betty Bajana

Anyone wishing to appear on the ballot as a candidate must submit a petition signed by a minimum of ten current members.

NUCLEAR AND PLASMA SCIENCES SOCIETY AND MAGNETICS SOCIETY - NEW OFFICERS

Chairman

Tom Jurgens
Fermi National Accelerator Lab
✉ t.jurgens@ieee.org

Vice Chairman

Tom Erber
Illinois Institute of Technology
✉ physerber@minna.IIT.edu

Treasurer

Francois Ostiguy
Fermi National Accelerator Lab
✉ ostiguy@fnal.gov

Secretary

Dave Carpenter
Vector Fields, Inc.
✉ dcarpenter@vectorusa.com

CHICAGO SECTION TECHNOLOGY ENRICHMENT KICKOFF MEETING

STATUS OF HIGH-PERFORMANCE COMPUTING IN THE WORLD AUTOMOTIVE INDUSTRY

Presented by Dr. Myron Ginsberg of General Motors Research and Development

Thursday, March 21, 1996

ABOUT OUR TOPIC

If you attended our Section Kickoff Meeting last September, you heard IEEE President Wally Read mention incentives for bringing IEEE resources closer to you. One of them is the availability of Distinguished Lecturers. Many IEEE Technical Societies support the program by subsidizing travel expenses for members who have distinguished themselves in industry and academia. They are available to discuss and describe their achievements to our membership.

On an individually determined basis, the program is open to active chapters of the society within a section, to school branch chapters, and to sections.

We acknowledge with pleasure the activity of UIC Prof. Alex Veidenbaum and students Athena Kostani and Jayham Chulani who suggested our speaker: Dr. Myron Ginsberg

ABOUT OUR SPEAKER

Dr. Ginsberg is a 1970's graduate of Iowa University, at a time when Computer Science was developing algorithms for data base management and robotics, compared to the wide variety of image processing and very large data bases today. His career spans large military, government, and automotive applications.

PLACE

Jerry Sharko's
2225 Ogden Ave.
Lisle, IL

TIME

Social 6:00 PM
Dinner 7:00 PM
Presentation 8:00 PM

NOTES

Dinner costs \$15.00 per person and the presentation is free. Dietary and vegetarian meals can be requested when you make your reservation. Before the presentation, the Chicago Chapter of the Computer Society will hold its election of officers.

FOR RESERVATIONS

Please call the IEEE Business Office at (800) 898-IEEE to make your reservation.

FOR FURTHER INFORMATION

Contact Jack Sherman at (708) 885-4189, ✉ j.sherman@ieee.org

TECHNICAL PANEL DISCUSSION ON "SOFTWARE PATTERNS"

Presented by Panelists Jim Coplien and
Bob Hanmer of Lucent Technologies,
Ralph Johnson of U of I at Champaign, and
Jonathan Engelsma of Motorola

Thursday, March 28, 1996

ABOUT OUR PANEL DISCUSSION

Speaker Jim Coplien

"Brain drain" is an increasing problem in software-intensive industries, owing to staff mobility and downsizings. Organizations try to compensate for this loss with panaceas such as objects, reuse, formal methods, and development process, but none of these alone can deliver.

What experienced staff know that no method can deliver are the mechanisms, relationships, and other patterns of architecture that live inside complex systems. Such patterns are at the heart of system architecture. The architecture of a system is, or should be, a key intellectual asset of the corporation that developed it. This asset usually lives inside peoples' heads, and isn't easily communicated with contemporary design methods.

The pattern literature, and pattern culture, propose to address this problem by capturing key intellectual assets. Patterns provide design-level reuse, at a level of abstraction unforeseen by most contemporary reuse programs.

Patterns are by no means a panacea, but they offer a dimension and depth of expertise lacking in other contemporary disciplines. This talk is an overview of the key principles, values, and scope of the pattern community.

Jim Coplien is a member of the Software Production Research Department in Lucent Technologies. He holds a BS in Electrical and Computer Engineering, and an MS in Computer Science, both from the University of Wisconsin. He is author of "C++ Programming Styles and Idioms," the foremost high-end C++ book in the industry, and co-editor (with Doug Schmidt) of "Pattern Languages of Program Design." He writes a pattern column for the C++ Report.

Speaker Bob Hanmer

Software patterns provide a way to record the experiences of earlier architects and designers who had to solve the same problems that are being faced today. Patterns can be used to understand how an existing system works as well as providing a means to convey this information to others. This talk will discuss the "mining" of patterns from a mature product to obtain architectural documentation.

How these patterns are being used to introduce new employees to the architecture will also be presented.

Bob Hanmer is a Distinguished Member of Technical Staff with Lucent Technologies in Naperville. While at Lucent his work has involved the software architecture and system integrity of high availability telecommunications products. He has been working with patterns for the past year as a means of documenting architecture.

Speaker Ralph Johnson

All expert designers follow patterns, but most don't do it consciously. If we name and document the patterns that we follow, we can become better designers and we can teach other people to become expert designers. My experience is with patterns in object-oriented software, both relatively generic low-level patterns and more domain-specific higher-level ones. However, I am confident that documenting patterns will be useful for other kinds of software.

Ralph Johnson is a professor in the Dept. of Computer Science at the University of Illinois at Urbana-Champaign. He is a co-author of "Design Patterns: Elements of Reusable Object-Oriented Software" and has been active investigating patterns, object-oriented frameworks, and software reuse.

Speaker Jonathan Engelsma

During the past couple of years, design patterns have enjoyed a considerable amount of attention within the object-oriented community. Since the wildly popular "gang-of-four" book appeared at OOPSLA '94, many patterns have been written and distributed on the Internet. Design patterns have received (and probably will continue to receive) considerable attention among software practitioners for a very good reason - they address fundamental problems that have long plagued the software industry. Nevertheless, it is my opinion that before design patterns (both the capture of design knowledge in pattern form and their later reuse in subsequent designs) becomes a widely accepted practice within the software industry, there are some open questions that need to be addressed by the patterns community.

Jonathan Engelsma received a Ph.D. in computer science from Michigan State University in 1993. At Motorola Jonathan works as a lead engineer in the Intelligent Network Organization's Strategic Software Technologies Department. At the moment his responsibilities involve the design and prototyping of new intelligent network service concepts.

PLACE

Univ. of Illinois at Chicago
Science and Eng. Office (SEO)
Room 1000 (10th Floor)
851 S. Morgan Street
Chicago, IL

TIME

Social 1:00 PM
Opening Remarks 1:30 PM
Scholarship Presentation.... 1:45 PM
Technical Presentations..... 2:00 PM
Q&A/Closing Remarks..... 4:00 PM

FOR RESERVATIONS AND FURTHER INFORMATION

For meeting info, contact Dr. Weider Yu at (708) 224-4511, weider.d.yu@att.com
For University info, contact Barbara Wehner at (312) 996-2462.

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Computer Society
UIC Student Branch

PITFALLS OF ASSESSING HIGH-PERFORMANCE COMPUTING FOR SCIENTIFIC AND ENGINEERING APPLICATIONS

Presented by Dr. Myron Ginsberg of
GM Research and Development

Friday, March 22, 1996

ABOUT OUR TOPIC

This program will provide the basic terminology, machine characteristics as well as examples of specific computes and applications. Tradeoffs amongst serial, vector, modestly parallel and massively parallel programming strategies will be discussed along with the problems encountered when trying to assess machine performance. Details will be presented for some of the most recent machines such as the IBM SP-2, Cray Research T3D and Triton, Convex Exemplar, and the SGI Power Challenge. Topics which can be covered include: hardware and software attributes, applications, programming techniques, performance, evaluation, and visualization.

ABOUT OUR SPEAKER

Dr. Ginsberg is a Consultant Systems Engineer in the EDS Advanced Computing Center. His research interests are in high-performance computing and benchmarking techniques. He has over twenty-five years of high-performance computing experience in private Industry, government research labs, and academia. He has been heavily involved in GM's initial and continuing supercomputing efforts. Dr. Ginsberg is listed in the Who's Who in Science and Engineering (1994/1995 and 1996/1997) and Who's Who in America (1996).

PLACE

Univ. of Illinois at Chicago
Engineering Resource Facility (ERF)
Room 1043

TIME

Presentation .. 12:00 to 1:30 PM

NOTES

Also visit the Data Translation Product Show on March 22nd; hosted by the Student Branch at UIC. This show will be from 11:00 AM to 3:00 PM in the Senior Design Lab (SEL) in Room 3260.

RESERVATIONS

Reservations are not required.

FOR FURTHER INFORMATION

Contact UIC Student Branch at (312) 996-2527, ieee@eecs.uic.edu

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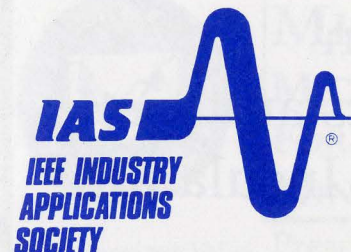
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**POWER
 GENERATORS:
 ROUNDTABLE DISCUSSION
 REGARDING APPLICATION
 AND SELECTION**

Presenters from Caterpillar,
 Kohler, Onan and Waukesha

Wednesday, March 27, 1996

ABOUT OUR TOPIC

Please join us for a four member panel discussion on the application of engine generator sets. Our presenters will be representatives from Caterpillar, Kohler, Onan and Waukesha. The meeting format will provide each generator representative the opportunity to respond to technical questions. The meeting will start with specific questions and then will be opened to questions from the audience.

PLACE

Como Inn
 546 N. Milwaukee Ave.
 Chicago, IL

TIME

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

DIRECTIONS

From the North: Take 90/94 to Ogden Avenue exit. Turn left onto Ogden to Milwaukee Avenue. Turn right on Milwaukee and proceed south. The Como Inn is located just over the expressway.

From the South: Take 90/94 to Lake Street exit. Turn left on Lake to Halsted Street. Turn right on Halsted to Milwaukee Avenue. Turn left on Milwaukee to the Como Inn.

Parking: Two large free self park lots are available or valet service at the Como Inn entrance on Ohio Street.

NOTES

Dinner will cost \$20. You will have a choice of a Chicken or Pasta entree.

FOR RESERVATIONS

To make your reservation, call the IEEE Business Office at (800) 898-IEEE.

UPCOMING EVENTS

Come out to the Western Suburbs for our next meeting on ComEd Metering.

FOR FURTHER INFORMATION

Contact Pat Hennelly at (708) 398-4510.



Spotlight on Dielectrics and Electrical Insulation Society

The Chicago Section Chapter of the Dielectrics and Electrical Insulation Society (DEIS) is presently being formed. A kickoff meeting is expected for mid-

April, 1996, which will include a presentation and officer elections. More information may be obtained by contacting Howard W. Penrose (see below). The meeting will be announced in the next issue of Scanfax.

The DEIS seeks to promote the study of dielectric phenomena and behavior, and the development, characterization and application of all gaseous, liquid, and solid electrical insulating materials and systems utilized in electrical and electronic equipment.

The Chicago Section Chapter of DEIS will be involved in an annual international conference held in Chicago, in association with the Electrical Manufacturing Coil Winding Association (EMCWA). The EMCW '96 conference will be held at the Rosemont Convention Center during September 24 through 26, 1996.

During 1997, this conference will be held along with the Electrical and Electronic Insulation Conference at the same location, in which DEIS will also play a part.

Further information can be received by contacting Howard W. Penrose through the following methods: Fax - (708) 469-0554, e-mail - hpenrose@ix.netcom.com, or through the World Wide Web.

Updates on the Chicago Chapter of DEIS's activities can be found on World Wide Web <http://www.prarienet.org/~hpenrose> (This is not an official IEEE Website) through completion of the chapter's formation.

From Howard Penrose.



MICROMACHINES: MICROFABRICATION OF SILICON FOR FLUID SYSTEM MINIATURIZATION

Co-sponsored with EMBS Presented by Peter Hesketh of UIC

Wednesday, March 27, 1996

ABOUT OUR TOPIC

Electronic devices were revolutionized by the integration of circuit elements into miniature circuits. In much the same way, microfabrication can bring similar benefits through the miniaturization and integration of fluid systems. As electronic devices are used to control the flow of electrons to perform work, microfluid systems control the flow of small quantities of liquids to perform work and motion.

In this talk, several types of microfabrication will be presented, including bulk and surface micromachining. Examples of microfabricated devices such as x-ray optical devices, pressure sensors, biosensors, and silicon micropumps will also be discussed.

ABOUT OUR SPEAKER

Peter Hesketh is an Associate Professor in the EECS Department and Co-Director of the Microfabrication Applications Laboratory at the University of Illinois at Chicago. He was awarded his MS and Ph.D. in Electrical Engineering from the University of Pennsylvania in 1983 and 1987, respectively. Mr. Hesketh has been awarded a Biomedical Engineering Research Grant Award (1994-1997) from the Whittaker Foundation.

PLACE

Jerry Sharko's
2225 Ogden Ave.
Lisle, IL

TIME

Social 6:00 PM
Dinner 7:00 PM
Presentation 8:00 PM

NOTES

Dinner costs \$15.00 per person and the presentation is free. Dinner menu includes Garden Salad, Dinner Rolls, Family Style Entree, Coffee, and Dessert. Dietary and vegetarian meals can be requested when you make your reservation.

FOR RESERVATIONS

Please call the IEEE Business Office at (800) 898-IEEE to make your reservation.

FOR FURTHER INFORMATION

Contact Howard Penrose at (708) 347-8850, hpenrose@ix.netcom.com



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Oak Brook, Illinois
April 30 - May 2, 1996**

The Joint Railroad Conference has been an important technical forum for the presentation of American railroad and rail transit technology for the last 37 years. This historic conference is sponsored jointly by the American Society of Mechanical Engineers Rail Transportation Division and the Institute of Electrical and Electronics Engineers Vehicular Technology Society Land Transportation Division. Its focus is on new technologies, design concepts and maintenance practices to improve the quality, reliability, safety and cost effectiveness of rail transportation. The two/three day format of technical paper presentations in a world class, yet moderately priced resort provides a low cost solution to keeping abreast of technical issues and developments in the industry.

In addition, the Conference provides an ideal environment to exchange ideas and experiences with engineers and maintenance personnel of rail transit authorities and rail transportation properties. Subjects include train control and signaling, traction power systems, vehicle/wheel/rail interaction, vehicles design, drive systems, trucks and suspension systems, communications and systems integration. Manufacturers and consultants are well represented, presenting papers on the emerging technologies that will enable rail service providers to offer more cost effective rail transit and transportation in the coming decades.

The Conference will be held at the Oak Brook Hills Hotel and Resort, which features an 18-hole championship golf course, tennis and racquetball facilities, jogging path and fitness center. A block of rooms has been reserved for the Conference at special rates of \$110 single and \$120 double. Contact the hotel directly at 708-850-5555 no later than April 10, 1996 to make room reservations.

The Full Conference Fee is a bargain at \$225, which includes the technical tour, two luncheons, refreshments and a copy of the proceedings. Contact Bob Moore, De Leuw, Cather, 525 West Monroe St., Chicago, IL 60606, (Phone) 312-930-5100, (FAX) 312-930-0018 for copies of the registration form and preliminary program. Paper abstracts are printed in advance in the January issue of VTS News.

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SEMINAR ON FLEXIBLE CIRCUITS: MATERIALS AND DESIGN

Friday, March 29, 1996

ABOUT OUR TOPIC

IEEE Components, Packaging, and Manufacturing Technology (CPMT) Society is pleased to be affiliated with the Chicago Electronic Materials Chapter of the American Society for Metals (ASM) for an afternoon seminar on Flexible Circuits: Materials and Design.

PLACE

Motorola Galvin Center Auditorium
Algonquin and Meacham Roads
Schaumburg, IL

DIRECTIONS

Enter Visitor's Entrance on Algonquin, the second entrance west of Meacham.

FOR RESERVATIONS

Please call Elizabeth Garbacki at (708) 527-2636.

FOR FURTHER INFORMATION

For details about the seminar, contact Anita Brandes (708) 205-2525.

TIME

Starts 12:30 PM
Ends 5:00 PM



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