

# RockIEEE Overlook

Newsletter of



**The Institute of  
Electrical and Electronics Engineers  
Denver Section**

January 1992

## IEEE Denver Section Meeting and Awards Presentation

IEEE Denver Section invites all members and guests, especially officers past and present, to attend the Section Meeting and Awards Presentation.

### **When**

Wednesday, January 8, 1992  
6:00 Dinner      7:00 Program

### **Where**

Brooklyn's Saloon & Restaurant  
2644 W. Colfax, Denver (under the viaduct)

### **What**

Presentation by Michael Foley, Forensic Engineering, Inc.  
*"Pitfalls of Electrical Design & Installation"*

**Dinner Cost - \$13.00**

Please call Anita Wanberg, 220-8042 for reservations by January 6, 1992.

## **Thank You**

IEEE Denver Section would like to sincerely thank the advertisers whose ads have been published in the RockIEEE Overlook. We appreciate your participation!



# Society Chapter Meetings and Information

## EMC

### Electromagnetic Compatibility Society

Tuesday, January 14, 1992

7:00 p.m.

National Institute of Standards & Technology  
325 Broadway, Boulder, Room 1103

#### Speaker

Myron Crawford, NIST

*"Status of Reverberant Test Chambers"*

Please call Ev Evans, 761-9447, or Mark Lapchak, 773-4626,  
for more information.

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## Joint PES/IAS

### Power Engineering/Industry Applications

Thursday, January 16, 1992

Brooklyn's Saloon & Restaurant, 572-3999  
2644 W. Colfax, Denver (under the viaduct)

6:00 p.m. Social, 7:00 p.m. dinner (optional @ \$10)

**Student IEEE Members Dinner Free**

8:00 p.m. Meeting

#### Speaker

Jim Phipps, Senior Engineer, Special Studies  
NEI Electric Power Engineering, Inc.

**"A Harmonic Distortion Control Technique Applied to 6-Pulse Bridge Converters"**

Mr. Phipps will present a method for reducing current harmonics produced by 6-pulse type converters in industrial power systems by the use of transformer connections. A case study will be presented which will cover field measurements of harmonic currents and voltages in an industrial power system. General principles on calculating series and parallel resonances for power systems will be discussed and an example will be given.

Please contact Barbara at Peterson Company, 388-6322, by  
Monday, January 13, 1992.

## Joint MTT/AP/GRS

### Microwave Theory and Techniques, Antennas and Propagation, Geo- science and Remote Sensing

Thursday, January 16, 1991

4:00 - 5:00 p.m.

National Institute of Standards and Technology  
325 Broadway, Boulder, Room 1107

#### Speaker

Joseph H. Swartz, Member IEEE  
Wayne M. Adams, Martin Marietta Astronautics Group  
Denver, Colorado

*"Hybrid Finite Element/Boundary Integral/Modal Expansion Modeling of Cavity-Backed Patch Antennas"*

The radiation from a cavity-backed patch antenna is modeled using a hybrid finite element/boundary integral/modal expansion model. The patch radiator is conformal with an infinite ground plane and is fed by a coaxial line through the bottom of the cavity. The system is modeled in three parts: the coaxial feed external to the cavity, the interior of the cavity, and the radiated fields external to the antenna. The fields in the coaxial feed are represented by a modal expansion. Internal to the cavity, a finite-element, partial differential equation model (using the two Maxwell curl equations) is used to represent the fields.

Please call Ron Vidano at Ball Aerospace, 460-2001  
if you have any questions.

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## FRSWQC

### Front Range Software Quality Committee of the Reliability Society

Friday, January 24, 1992

2:00 - 4:00 p.m.

Building 4, Storage Technology, Louisville, Colorado

#### Speaker

Bliss Jensen, AT&T Bell Labs

*"Software Quality Engineering - A Technique for Cost-Effective Testing"*

# Chairman's Corner

by H. Paul Meisel

Welcome to 1992 and a big thank you to Past Chairman Gary Petersen for an outstanding year. As I observed so many times during 1991, the needs of the Denver Section are vast and the solutions slow to be accomplished.

I have chosen, this year, to emphasize the needs of our members. Although all projects started will be continued, we shall emphasize the need for continuing education and professionalism of our membership. Rapid technology changes demand that we bring as many technical programs, aids, and opportunities to our members in the most concise, easy to assimilate, and convenient manner as possible. Our Education Committee Chairman, Michael Meister, can use all your help with ideas and manpower to bring this effort to the best possible fruition.

Professional operations will be continued in 1992 by Darrell Sabatka who has finally determined the direction being established by the Professional Activities Committee (PACE). Although some purists of IEEE as a technical organization would prefer that professional issues not be addressed, we do not live in a vacuum and must face the realities of layoffs, job eliminations, plant closures, and project completions to name a few.

We hope to plan a seminar in 1992 to inform members in need, how to deal with the realities of new job searches and the preparation for actively seeking new employment.

Not being forgotten during this year will be the sub-organizations of the section. The section officers will be involved with the strengthening of weak sub-sections and chapters. With approximately 4500 members in the Denver Section, one would not think that we have a volunteer leadership problem or lack of support by attendance at meetings, but we do. Our success or failure depends and starts with the individual. Attendance at just one section, chapter, sub-section or student branch meeting by each member just one time would more than double our attendance and hopefully provide members with new technical insights and friendships.

I am looking forward optimistically to the challenges of the Denver Section. To help me during 1992, I have looked at the longer term, thornier problems, and decided that a Long Range Planning Committee should be looking for permanent solutions. Heading this effort will be Gary Petersen with a committee of some of the recent section past chairmen. Their agenda has already been defined and I am looking forward to successful solutions.

The financial results of 1991 were positive, but we are spending more each year on the RockIEEE Overlook and at present we are spending more than our normal income. Since this is our main means of communication, we'll be looking at additional ways to subsidize some of the expense.

Finally, we are looking for people who can donate a few hours per month or quarter, who would like to be more involved. Please let me know your interests and available time commitments.

I hope to see you at an IEEE meeting this year.

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### Engineer-In-Training (E.I.T.) Refresher Course Metropolitan State College of Denver

Seven Saturday mornings 0800-1200 from Feb. 8 to Apr. 4, 1992. Advance registration is advisable to ensure a place in the course call H Paynter at (303) 556-2503 or 2977, or mail this form.

#### MSCD Engineer-In-Training Refresher Course

Spring 1992 Registration Form - Donation \$125 payable to Engineering Technology Program (includes a copy of Michael R. Lindeburg's E.I.T. Reference Manual, 7th Ed.)

Name \_\_\_\_\_

Address \_\_\_\_\_

Mail to: Metropolitan State College of Denver, E.I.T. Refresher Course, Campus Box 90, P.O. Box 173362, Denver, CO 80217-3362.





# S-PAC at Metropolitan State College of Denver

by Doyle Ellerbruch

The Student Chapter at metropolitan State College of Denver is hosting a Student Professional Awareness Conference (S-PAC) Saturday, February 8, 1992 from 11:30 a.m. to 5:45 p.m.

This is an opportunity for potential engineers to learn about the engineering profession from the experiences of those successful in the field. Tentative guest speakers and their topics are:

Beth Moses, Hewlett Packard  
"The Real World"

Albert Rosa, University of Denver  
"The Engineering Profession"

James Watson, Watson Enterprises  
"Polishing Your Professional Image"

Charles Wright, retired from Public Service of CO  
"Why You Need the IEEE"

Engineering students and high school students who are contemplating an engineering career and want to learn more about engineering are invited to attend. For more information call (303) 556-2503.

## PES/IAS Tutorials 91/92

The joint PES/IAS Chapter in Denver has offered tutorials for several years. The tentative schedule for this year is to offer the following four hour tutorial in late April. Look for details on registration in future issues of the Overlook.

### Topic

Introduction to EMTP

This course will discuss, in general, solutions to power system transient problems using the Electromagnetic Transients Program. Various EMTP models will be discussed. Emphasis will be on the PC version of EMTP - Alternative Transients Program (ATP).

### Instructor

Jeff Selman, Tri-State G&T  
Engineering Supervisor and Honorarium Instructor at UCD

## Seminar March 3-5 1992

Substation Voltage Uprating  
(and Compact, Reduced Insulation Designs)

Sheraton Denver Airport Hotel  
Denver, Colorado

This EPRI sponsored 2-1/2 day seminar is intended to familiarize utility engineers with various design aspects in uprated and compact-air-insulated high-voltage substations. General insulation coordination theory, as well as specific 115 kV to 230 kV (550 kV BIL) and 69 kV to 138 kV (350 kV BIL) substation uprate case studies will be discussed, describing utility experiences with corona performance and personnel safety concerns. General Electric, Public Service Co. of Colorado, ENTERGY (LP&L), and Tampa Electric Co. will be the presenters of this seminar. The registration fee will be \$150 for EPRI members and \$850 for organizations not eligible for EPRI membership. The deadline for registration is February 1, 1991 (although late registrants may be considered). For additional information contact either Ray LaPanse (PSCC 329-1539), or Jan Panek (GE-Schenectady, NY (518) 385-7177.

## TCA 1992 Expo

The 1992 Rocky Mountain Telecommunications Exposition will take place at the Sheraton Denver Tech Center on April 14 - 16, 1992.

This year's show promises to surpass last year's floor traffic figure of 2,000 and provide more education along with excitement to the telecommunications professionals of Denver and the Rocky Mountain Region. Please join us for a history making event as this region becomes more competitive and informed in this ever-changing industry.

Booths are available and booth assignments will take place as soon as we have a form and deposit.

Please call Diane Lindsay, 1992 Trade Show Director at (303) 397-2254 for information and booth registrations.

## Appreciation

The Denver Section and its membership wish to express their appreciation to our Conference Chairmen of 1991. There were three very successful conferences held.

A special thank you goes to Russ Johnson, George Flaig and Sadrul Ula. Through their leadership and their committees, the Section hosted an International Communication Conference, a Substation Committee Meeting and a Region 5 Meeting.

Thanks fellas for a job well done. We are all deeply grateful.

John Tary

## Schedule of Conferences and Meetings

February 2-7, 1992	Snowmass	Aerospace Application Conference	Richard Day	(714) 863-0350
March 6-8, 1992	Denver	News 4 Education Expo	Suzanne Thompson	(303) 988-3803
April 14-16, 1992	Denver	Telecommunications Assoc. Expo.	Diane Lindsay	(303) (397-2254
April 24, 1992	A.F. Acad.	CO-WY Jr. Academy of Science	John Tary	(303) 452-6111
April 22-24, 1992	Denver	EMC-ESD International	Mike Frisoni	(303) 220-0600
May 11-13, 1992	Denver	Vehicular Technology Conf. (VTC '92)	Jim Schroeder	(303) 871-3519
May 11-14, 1992	Denver	Power System Relaying (PES)	John Appleyard	(608) 364-5622
June 25-26, 1992	Denver	Software Reliability	Rick Karcich	(303) 673-6223
Sept./Oct. 1994	Denver	IAS Annual Meeting	Paul Meisel	(303) 761-6960
September 10-14, 1995	Denver	Petroleum & Chemical (PCIC)	John Nelson	(303) 431-7895
July 27-August 2 1996	Denver	PES Summer Meeting	Fred Jones	(303) 431-7895
1997	Denver	PES Joint Power Generation	Gary Petersen	(303) 329-1506
May 1997	Denver	MTT	Hussain Haddad	(303) 460-2114
			John Dunn	(303) 449-1055
			Claude Weil	(303) 497-5305

## Proposed Conferences and Meetings

International Conference on Harmonics in Power Systems (ICHPS) 1996  
ESMO 1996  
Sections Congress 1996  
Transmission & Distribution 1997  
ITC 2000  
ICC 1995-2000  
EMC 1995-2000



## Overlook Advertising

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Business card ads must be actual business cards. All other ads should be provided in camera-ready format or additional set-up charges may apply. Inserts must be provided (quantity approx. 4225) and delivered to the printer.

### Deadlines for 1991-1992

February 1992 Newsletter - January 3, 1992

March 1992 Newsletter - January 27, 1992 \*\*

April 1992 Newsletter - March 2, 1992

May 1992 Newsletter - April 1, 1992

Please make checks payable to Denver Section IEEE. Send business card or ad copy and check to: Anita Wanberg, AMW, P.O. Box 4056, Englewood CO 80155-4056, (303) 220-8042.

**\*\* Please note: Due to previous obligations, the deadline for the March Overlook has been changed to January 27, 1992. Please have all information for the newsletter to Anita at that time.**

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# 1991-1992 Denver Section Student Branch Counselors and Chairmen

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University of Colorado, Boulder Dept. of Electrical Engineering Campus Box 425 Boulder, CO 80309	Andrew Pleszkun (303) 492-35871	Jason Schilling (303) 492-7975
University of Colorado, Denver Dept. of Electrical Engineering Campus Box 110 P.O. Box 173364 Denver, CO 80217-3364	Donald S. Gage (303) 556-2814	Don Morris (303) 556-2348
University of Denver Dept. of Engineering 2390 S. York St. #200 Denver, CO 80208	Jim Schroeder (303) 871-3519	Katrina Kurtz 778-0472
Metropolitan State College of Denver Dept. of Electronics Engineering Technology Campus Box 29 P.O. Box 173362 Denver, CO 80217-3362	Doyle A. Ellerbruch (303) 556-4007	Michael Duffy (303) 556-2501
South Dakota School of Mines and Technology Dept. of Electrical Engineering Rapid City, SD 57701	Abul R. Hasan (605) 394-1220	Ron Olsen (605) 394-2429
University of Wyoming Dept. of Electrical Engineering University Station Box 3295 Laramie, WY 82070	Sadrul Ula (307) 766-6268	Steve Salter



# The Institute of Electrical and Electronics Engineers - Denver Section

## Executive Board

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Hydrologics, Inc.  
3101 S. Platte River Dr.  
Englewood CO 80110  
(303) 761-6960

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Metro. State College  
P.O. Box 173362  
Denver CO 80217  
(303) 556-4007

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Educational Activities - **Michael J. Meister**, National Telecommunications & Info. Admin., 497-6571  
Conferences - **John Tary**, Tri-State Generation and Transmission Association, 452-6111  
Awards - **John R. Reesey**, 755-1720  
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Nominations - **Gary A. Petersen**, Public Service of CO, 329-1506  
Membership - **Don E. Lindahl**, Siemens Energy & Automation, 770-7907  
Pre-College Student Activities - **Michael Meister**, NTIA/ITS.NI, 497-6571  
Long Range Planning - **Gary Petersen**, Public Service Co., 329-1506

## Executive Committee (Ex-Officio Members)

### Subsection Chairmen

Black Hills - **R.D. McNeill**, Electrical Engineering Dept., South Dakota School of Mines & Technology, Rapid City, SD, 57701, (605) 394-2452  
Centennial - **Sadrul Ula**, Electrical Engineering Dept., University of Wyoming, Laramie WY 82071, (307) 766-6268

## Society Chapter Chairmen

Aerospace and Electronics - **Ed LeBlanc**, Transmountain Electronics, 393-9257  
Electromagnetic Compatibility - **Mark Lapchak**, Metrum Information Storage, 773-4626  
Engineering in Medicine and Biology - **Jim Heller**, 790-9010  
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Joint Computer/Information Theory - **Brice Chapman**, Storage Tek, 673-4762  
Joint Vehicular Technology/Communications - **Ken Shugg**, Martin Marietta Information and Communications Systems, 397-7417

Instrumentation & Measure - **Richard Groves**, CO School of Mines, 273-3677  
Joint Power Engineering/Industry Applications - **Bob Struthers**, United Engineers & Constructors, 843-2235  
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Reliability - **Rick Karcich**, StorageTek, 673-6223

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RockIEEE Overlook Editor - **David B. Richmond**, United Engineers, 843-2465  
P.O. Box 5888, Denver, CO, 80217

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P.O. Box 4056, Englewood, CO, 80155-4056

## The Institute of Electrical and Electronics Engineers



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## The Month at a Glance

**January 8, 1992**

Denver Section Meeting

**January 14, 1992**

EMC Meeting

**January 16, 1992**

PES/IAS Meeting  
MTT/AP/GRS Meeting

**January 24, 1992**

CS/ITS Meeting

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