

# RockIEEE Overlook

October 1990

Newsletter of



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

## **Denver Section Meeting**

### **Status Report -- New Denver Airport Election of 1991 Officers**

**Wednesday, October 10, 1990**

**Social Hour - 6:00 p.m.**

**Dinner - 7:00 p.m.**

**Meeting- 8:00 p.m.**

**Stapleton Plaza Hotel, 3333 Quebec St.**

The new Denver airport continues to make daily headlines, in part because it is one of the most extensive construction projects ever undertaken in the Rocky Mountain region. Our speakers will give an update on the status of this major project. Our speakers will be Bill Smith, Associate Director of Aviation for the City of Denver, and Jeff Sellon, Project Manager for Behrent Engineering.

Bill Smith will give us an update on the status of the new airport, including discussion of the initial airport configuration, magnitude of construction effort, people mover systems, baggage conveying systems and the controversial fabric roof. Jeff Sellon will discuss the proposed electric distribution system for the new airport, including discussion of FAA electrical system reliability criteria.

This meeting will also include election of Denver Section officers for 1991. The nominating committee has proposed the following slate of officers for 1991: (Nominations will also be accepted from the floor.)

**Chairman  
Senior Vice Chairman  
Vice Chairman, Members Services  
Vice Chairman, Student Activities  
Treasurer  
Secretary**

**Gary Petersen  
Paul Miesel  
Don Cottrell  
Doyle Ellerbruch  
Lew Beck, Jr.  
John Barnick**

Please try to attend this meeting to participate in the election of officers and to get up-to-date information on the new airport. Mark your calendar today and call Anita Wanberg at 220-8042 by Monday, October 8, 1990 to make your reservation.

Dinner will be London Broil and will cost \$16.00. As always, **Student Members pay half price** for dinner. It is not necessary to have dinner in order to attend the meeting that follows.



## Society Chapter Meetings and Information

### Joint AP/MTT/GRS

#### Antennas and Propagation, Microwave Theory and Techniques, Geoscience and Remote Sensing

Thursday, October 18, 1990

National Institute of Standards and Technology  
325 Broadway, Boulder, Room 4020  
4:00 - 5:00 p.m.

#### Speaker

Dr. Walter Curtice  
W.r. Curtice Consulting  
Princeton Junction, New Jersey

#### "Nonlinear GaAs and FET Modeling - A Mixture of Art and Science"

It is a significant challenge for microwave scientists to develop large-signal models for the GaAs MESFETs since the models must be simple enough to execute rapidly in circuit simulation software, but sufficiently sophisticated to accurately describe the complex behavior of these devices. The purpose of this presentation is to review the nonlinear FET modeling work directed toward development of computer aided design techniques. Emphasis will be given to microwave applications although FET models for digital circuits will also be described.

The presentation has three major parts:

(1) Introduction to active device modeling, (2) Equivalent circuit models: Complexity, calibration, and verification, (3) Applications of GaAs FET models in commercial simulators for the design and optimization of hybrid and MMIC circuits.

Reservations are **not** required. Please call Katie MacReynolds at 497-3471 if you have any questions.

### Joint PES/IAS

#### Power Engineering/Industry Applications

Thursday, October 18, 1990  
Brooklyn's Saloon and Restaurant  
2644 W. Colfax, Denver  
572-3999

6:00 p.m. Social  
(refreshments courtesy of  
Multilin and Power Equipment Specialists  
7:00 p.m. Dinner (optional @ \$10)  
8:00 p.m. Meeting

#### Speaker

Jeff Selman  
Lead Engineer  
Technical Services Group  
Tri-State Generation & Transmission Assoc., Inc.

#### "Evaluation of Shunt Capacitor Bank Switching Using EMTP"

Shunt capacitor banks are commonly used in high voltage power systems as a means of voltage support. These banks are often switched on a daily basis with little concern as to the adverse effects of switching transients on the system. With the advent of personal computers, a digital program known as EMTP (Electro-Magnetic Transients Program) has become more accessible to the power system engineer providing he or she with a valuable tool for evaluating power system transients. Two case studies are examined, switching of a single isolated bank, and back-to-back switching of adjacent banks.

Please contact Barbara at Peterson Company, 388-6322, by Monday, September 17, 1990.

### EMC

#### Electromagnetic Compatibility - Rocky Mountain Chapter

Tuesday, October 9, 1990

National Institute of Standards and Technology  
325 Broadway, Boulder, Room 1107 (Enter front of main bldg.)  
7:00 p.m.

#### Speaker

Robert F. German, EMC Engineer, Henry Ott Consultants

#### "Effect of an Image Plane on Printed Circuit Board Radiation"

For more information call:  
Mark Lapchak (303) 773-4626 or  
Ev Evans (303) 761-9447

## UTC Telecommunications Workshop

Mariott Hotel, Fort Collins, Colorado

October 18, 1991  
8:30 a.m. - Registration  
Workshop 8:30 a.m. - 4:00 p.m.

#### "Fiber Optics and LANS"

This workshop is open to the public.  
For additional information contact:  
Mike Schmitz (303) 229-5269.

## IEEE Reliability Society

### Tenth Anniversary Celebration Monday, October 22, 1990

Cherry Creek Inn  
600 South Colorado Blvd., Denver  
6:00 p.m.  
\$13.00 per person

Reservations required by October 15, 1990.  
Call Rick Karcich (303) 673-6223 or  
Juan Hernandez (719) 590-8880 x 410

### Front Range Software Quality Committee

Friday, October 19, 1990

StorageTek  
Louisville, Colorado  
Dining Rooms 1 and 2, Building 4  
(use South entrance)  
2:00 - 4:00 p.m.

#### Speaker

Gene Miluk  
Denver Metrics Group

#### "Using Measurement to Improve the Software Process"

Please call Rick Karcich, 673-6223 if you have any questions.

(Next meeting will be on Friday, Nov. 16)

## Chairman's Message

by Jack Reesy

In the last issue of the Overlook, the Slate of candidates for the 1991 Denver Section Officers, as proposed by the nominating committee, were presented. Nominations may be made from the floor and election of officer's will be on October 10th. The meeting on the 10-th is open to all Denver Section members. A large turnout for th meeting would be great!

Campaigning for National and Regional offices is in progress and by the time you read this, you'll probably have the ballot. Please study the candidates and participate by voting for your choice.

A petition to establish a "Magnetics Society" chapter within the Denver Section has been approved by the section and submitted to National. Watch the Overlook for additional information and meeting dates.

### Upcoming meetings

October 10, 1990 - Denver Section, Elections  
October 24, 1990 - Executive Board  
November 228, 1990 - Executive Board

## General Electric Power Systems Engineering Seminar Series

The Joint Power Engineering/Industry Applications Society in conjunction with Public Service Company of Colorado is interested in bringing General Electric instructors to Denver to provide the following two seminars:

### Electro-magnetic Transients and Insulation Coordination

- 4 Instructors; 4 days  
- 30 person minimum  
- \$1200 per person

### Geomagnetically Induced Currents: System and Equipment Impacts

- 2 instructors; 2 days  
- 30 person minimum  
- \$600 per person

If you are interested in attending either of these seminars or would like additional information on the course contents, please contact Fred Jones at (303) 299-5266.



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## IEEE PES/IAS 1990/1991 Tentative Meeting Schedule

November 15, 1990

**"Adjustable Speed Drives and Harmonics"**

January 17, 1991

**"Advanced Electrical Technologies Designed Into the  
New Denver International Airport"**

February 21, 1991

**"Sidney Back-To-Back DC Converter Station"**

March 21, 1991

**"Geomagnetic Induced Currents"**

April 18, 1991

**IEEE Denver Section All Chapters Meeting**  
Topic to be announced

May 16, 1991

**Tour of New Public Service Co. of Colorado "Gas  
Insulated Substation" In Downtown Denver**

## IEEE 1991 International EMC Symposium

August 13-15, 1991

### Call for Papers

The IEEE EMC Society seeks original, unpublished papers and proposals on potential sessions, workshops, and tutorials on all aspects of EMC.

### Author's Schedule

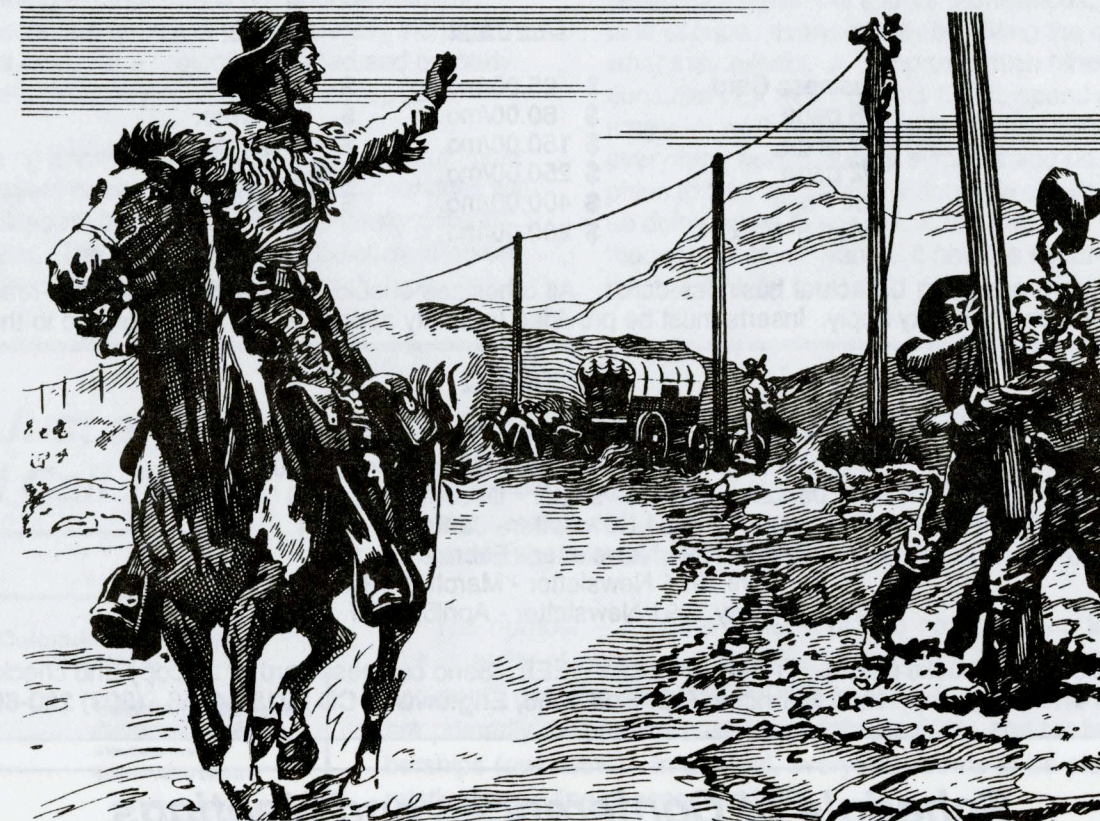
	6-page format	2-page format
Synopsis (3 copies)	Oct. 15, 1990	Dec. 1, 1990
Notification of Accept.	Dec. 15, 1990	Jan. 15, 1991
Camera-Ready Copy	Feb. 15, 1991	Feb. 30, 1991

Prospective authors should submit two copies of a 500- to 750-word synopsis with up to five illustrations, clearly explaining the contribution, its originality and relevance to EMC. Please indicate the desired paper format and technical area (by number or several numbers, if applicable) on the first page of the Synopsis. For anonymity during review, please identify the author(s) only on the cover sheet. Paper acceptance will be based on the following criteria: importance of topic, technical sophistication and depth, readability and clarity, presentation and discussion of results, novelty/originality. Promotional and commercial presentations are not acceptable. Prospective session organizers submit the session title and a 1000-word Synopsis containing the session objectives and tentative topics for consideration. Upon acceptance, authors will receive an author's kit. All papers must be orally presented in the Symposium by authors or their designated presenters. Synopses and all communications should be directed to:

IEEE 1991 International Symposium on EMC  
P.O. Box 609  
Lincroft NJ 07738

## Denver Section Dedicates Transcontinental Telegraph An Electrical Engineering Milestone

Sunday, August 5, 1990, 85 Denver Section members and guests gathered at the Ft. Laramie National Historic Site to dedicate two bronze plaques. The first plaque designates the Transcontinental Telegraph an IEEE Electrical Engineering Milestone. The second plaque commemorates Ft. Laramie's role as a major station on the telegraph line. Soldiers from Ft. Laramie protected the line, made repairs, and operated remote repeater stations. August 5th was chosen as the day for this dedication because on August 5, 1861, a team of linemen, working from the East, reached Ft. Laramie with the line. When President Lincoln signed the bill authorizing construction of the line, he thought it would take at least 10 years. In fact it was constructed in just 3 months and 20 days. One team built west from St. Joseph, Missouri, while another team built east from Sacramento, California. While the line was being constructed, the Pony Express carried messages between the two construction terminals where they were then relayed over the completed line.



Jack Reese, Chairman of the Denver Section, served as master of ceremonies for the Dedication. Speakers included Carleton Bayless, President of IEEE; Robert J. Amman, President of Western Union Corporation; Dr. Richard Gowen, Past President of IEEE and President of the South Dakota School of Mines and Technology; Steve Oxley, Administrator of the Wyoming Public Service Commission, and Gary Candelaria, Supt. of the Fort Laramie National Historic Site.

The Denver Section nominated the Transcontinental Telegraph for designation as an IEEE Electrical Engineering Milestone. Ft. Laramie was proposed as the site for the plaques because of its important role in the protection and operation of the line and because it is located within the Denver Section's territory. John Martin served as Chairman of the nominating committee and Charles Wright, a member of the IEEE History Committee, shepherded the nomination through the IEEE History and Executive Committees.

## CS/ITS

### Computer/Information Theory Society

Do you have an interest in the Computer/Information Theory Society activities? The society needs some good ideas and people to make them happen. There are many possible ways to participate. We could use recommendations for speakers and meeting optics. Would you be interested in arranging a meeting or other activity for the coming year, serving as a society officer, or participating on an officer nominating committee? If you have suggestions or can offer assistance, please call Rory Lalho at 924-7534.



## Recording for the Blind

The Denver Unit of Recording for the Blind is in desperate need of volunteers who are experts in science and math. The visually-handicapped students of all ages depend upon our recorded texts to complete their educations.

If you could spare three hours a week for this challenging, but very satisfying volunteer work, please contact our director, Barbara Hays, at 388-6594. The studio is located at 305 Milwaukee.

### 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. 3800) and delivered to the printer.

#### Deadlines

November 1990 Newsletter - October 5, 1990  
 December 1990 Newsletter - November 5, 1990  
 January 1991 Newsletter - December 5, 1990  
 February 1991 Newsletter - January 7, 1991  
 March 1991 Newsletter - February 4, 1991  
 April 1991 Newsletter - March 6, 1991  
 May 1991 Newsletter - April 5, 1991

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

### Schedule of Conferences and Meetings

September 11-12, 1990	Boulder	Symposium in Optical Fiber Meas.	Douglas Franzen (303) 497-3346
February 3-8, 1991	Crested Butte	Aerospace Applications Conf.	Leo Mallette (213) 334-2909
			Richard Day (714) 863-0350
April 12-14, 1991	Laramie	Region 5 Conference	Sadrul Ula (307) 766-6268
April 28 - May 2, 1991	Boulder	PES Substation Com. Mtg.	George Flaig (303) 452-6111
June 23 - 27, 1991	Denver	International Communications Conf.	Russ Johnson (303) 796-9100
May 11 - 13, 1992	Denver	Vehicular Technology Conf. (VTC '92)	Don Cottrell (303) 871-3752
September, 1995	Denver	Petroleum & Chemical (PCIC)	John Nelson (303) 431-7895
July, 1996	Denver	PES Summer Meeting	John Barnick (303) 969-0391
May 1997	Denver	MTT	Hussain Haddad (303) 460-2114
			John Dunn (303) 449-1055
			Claude Weil (303) 497-5305

#### Proposed Conferences and Meetings

IAS 1994  
 ACM/IEEE Design Automation 1994  
 PES Joint Power Generation 1994  
 ESMO 1996  
 Transmission & Distribution 1997  
 ITC 2000

## Consulting Engineering

By Dennis Edwardson

Consulting engineering firms provide an important role in the electrical industry by peak shaving of work during periods of engineering activity above that which a company's staff can handle. Alternatives are to staff for a peak and either layoff after the peak or maintain excess staff during non-peak periods. Also, a company can staff below peak and let the lack of engineering staff delay projects.

Layoffs for most companies are culturally unacceptable. Maintaining excess staff is not economical, and delaying projects due to lack of staff generally increases project overall costs. If a project is needed and properly scheduled, delays for any reason are unacceptable.

A consulting engineering firm, to be successful, must have a large client base. By providing timely services with qualified employees, a consultant can generally capture repeat business. The work that cannot be completed on time by an overloaded company design staff, typically

becomes available to outside consulting engineering firms in cycles. Generally the overload cycles of different companies are not the same. A consulting firm can maintain a somewhat stable workload with repeat business from many different clients.

Client/consultant relationships which seem to work best are those in which the client/consultant team-up over an extended period. In this type of relationship the consultant learns the clients preferences, and can provide services economically by giving the client exactly what they expect. A company which hires a different consultant for every project has to spend considerable time with each new consultant familiarizing them with everything from graphics symbols and design philosophies to typing formats. Each new consultant hired ends up doing many things twice, the first time the way he thought the client wanted it and the second time the way the client really wanted it.

### Help Just a "Free" Toll Call Away

Remind members, and tell potential members about IEEE's 800 number. Anyone in the U.S. or Canada can use it for the following: ordering an IEEE product; changing or correcting a name and/or address; applying for membership; obtaining information about his or her membership; and for information about training courses or seminars on standards.

The number -- 1-800-678-IEEE (4333) has been on line for a year. The quantity of phone calls received has grown from roughly 8,000 calls per month over the first eight months to 12,000 calls per month. The calls are primarily for product assistance (almost 50%) and for help with memberships (over 25%). In general, everyone seems to be pleased with this relatively new line of access to IEEE.

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Joint Antenna and Propagation/Microwave Theory and Techniques/Geoscience and Remote Sensing - **Katie MacReynolds**, National Institute of Standards & Technology, 492-5487  
Joint Computer/Information Theory - **Rory Laiho**, IBM, 924-7534  
Joint Communications/Vehicular Technology - **Ken Shugg**, Martin Marietta Information and Communications Systems, 977-2443

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## The Month at a Glance

**October 9, 1990**

**EMC Meeting**

**October 10, 1990**

**Denver Section Meeting & Elections**

**October 18, 1990**

**AP/MTT/GRS Meeting**

**PES/IAS Meeting**

**UTC Telecommunications Workshop**

**October 19, 1990**

**Reliability Software Committee Meeting**

**October 22, 1990**

**Reliability Anniversary Celebration**

**October 24, 1990**

**Denver Section Executive Board Meeting**

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