

# RockIEEE Overlook



THE INSTITUTE OF  
ELECTRICAL AND  
ELECTRONICS  
ENGINEERS, INC.

Denver Section

February, 1990

## Chairman's Message

by Jack Reesy

The Denver Section meeting on January 17th recognized, and awards were presented to, the outgoing 1989 officers. Keith Henderson, outgoing Chairman, presented the awards.

On behalf of the Denver Section, let me extend to Keith and the Committee a "Thank You" for a job well done.

We're starting a new decade and it is impossible to sit here and imagine what technological changes are going to occur. However, I do know that engineers are going to be the basis for any advancements. Technical people are so critical to our society; yet I hear on the news that math, reading and other accomplishments by our students are not as good as they were in the past. We in IEEE, through our Student Activities and all our other programs, should be more aware than ever of the decline in education, inventiveness, and good old American drive.

So, during 1990, set aside some time and knowledge to help through participation in IEEE!

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### Urgently Needed

The Boulder Vocational Education School would like to obtain a copy of the 3rd Edition of the IEEE Dictionary. If you would like to make a donation, please call Matt Matthews @ 427-1593. Any equipment you would like to donate would also be greatly appreciated.

The IEEE Denver Section expresses its sincere appreciation to John Tierney at Public Service Company of Colorado for his effort in working with the Denver Section membership database.



## Society Chapter Meetings and Information

### Joint AP/MTT/GRS

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

Thursday, February 15, 1990

National Institute of Standards and Technology  
325 Broadway, Boulder, Room 1103  
4:00 - 5:00 p.m.

#### Speaker

Dr. Kurt Weingarten  
Lightwave Electronics  
Mountain View, California

### "Testing of High-Speed IC's With Ultrashort Optical Pulses"

Gallium arsenide devices and IC's are creating new challenges for the high speed test instrumentation used to characterize their electrical responses. One need is for increased time resolution or frequency bandwidth, with transistors showing a maximum frequency of oscillation in excess of 100 GHz. A second need is for a noninvasive probe of internal signals in the IC's.

In the last decade, optical techniques for ultrashort pulse generation have outpaced electronic pulse generation techniques. Researchers routinely generate picosecond pulses at a number of optical wavelengths, with the record of 6 femtoseconds. This lecture will describe several methods for using these short optical pulses to make high speed electrical measurements on IC's. One method in particular will be emphasized, electrooptic sampling, which uses the linear electrooptic effect to allow for the detection of voltage signals with light and a high-repetition rate laser to repetitively sample the electrical waveforms. This approach allows direct probing of signals on the IC to allow in situ testing.

Reservations are not required

For further information call John Dunn at 492-5487.

### Reliability Society

The Software Reliability Forum meets every second Wednesday of the month from 2:00 - 4:00 p.m. For information, please call Rich Karcich at (303) 673-6223.

### Joint Meeting:

#### PES/IAS

Power Engineering/Industry  
Applications  
and

#### EMBS

Engineering in Medicine and Biology

Thursday, February 15, 1990

Brooklyn's Saloon and Restaurant  
2644 W. Colfax, Denver  
572-3999

6:00 p.m. Social  
7:00 p.m. Dinner (optional @ \$10)  
8:00 p.m. Meeting

#### Speakers

Dr. Frank Barnes  
Professor of Electrical Engineering  
University of Colorado, Boulder

Keith Smith  
Manager of Engineering  
Intermountain REA

### "Biological Effects of 60Hz Electric Lines from Both a Utility and Theoretical Viewpoint"

Current research and public interest in the subject of Electro-Magnetic Effects (EMF) will be discussed. Attention will be given to public relations and response to articles in the press and media. Measurements of buildings, residences, and right of ways as well as the types of measurement equipment will be presented.

Please contact Barbara at Peterson Company, 388-6322,  
by Monday, February 12, 1990.

#### EMC

Electromagnetic Compatibility

Tuesday, March 6, 1990

Autotrol  
12500 N. Washington St., Northglenn  
7:00 p.m.

Speaker  
Tom Burns

### "Testing for FCC Emissions"

Call Andy Anderson, 971-6422, for more information.

## IEEE 1990 Aerospace Applications Conference

February 3 - 10, 1990, Vail Colorado, Mountain Haus Hotel

### Background Information

The Aerospace Applications Conference is a week-long intensive symposium covering a variety of topics of interest to IEEE members. This conference is the eighth in a series of winter conferences designed to bring together, in a more stimulating way, IEEE members and others in the aerospace field.

In addition to the papers being presented, free-format workshops and beautiful environments are designed to enhance the technical discussion and interaction.

### Technical Program

The technical program will offer evening sessions Monday through Friday on topics of interest within the aerospace field. The emphasis will be on applications, present and future. The program theme recognizes the interdependence of system concepts with hardware/software development; and applications-oriented papers will cover original work in system concept evolution and state-of-the-art hardware. Sessions scheduled will cover topics in:

System Concepts  
System Management  
Communications & Telemetry  
Instrumentation & Measurement

Computer & Microprocessor Applications  
Millimeter & Microwave Technology  
VLSI & Semiconductor Technology  
Aerospace Manufacturing & Testing

Energy and Space  
Software Methodology  
Electro-optic Applications  
Graphics & Display Systems

### Accommodations

All session activities and presentations will be held in the Mountain Haus Hotel in Vail Colorado. Free bus service is available within the local area. Arrangements have been made with SPORTOURS of La Canada for a limited number of accommodations. These rooms are mostly two bedroom condominiums. In addition, complete transportation packages are available as described in the travel brochure.

### Job Opening

The National Institute of Standards and Technology (formerly the National Bureau of Standards) seeks an electrical engineer (EE) to work with a team of engineers and physicists on electronics for acoustical and electromagnetic sensors. The EE will be a project leader responsible for design, layout, construction and testing of analog circuits in MHz frequency range. Typical projects require low-noise, high-gain voltage amplifiers, and high-current pulsers to drive inductive loads. Good analog design background is a prerequisite. Digital electronics and computer skills are also desirable.

The position is with the Materials Reliability Division of NIST in Boulder, Colorado. Competitive salaries commensurate with experience will be offered in the range of \$33,169 to \$48,000. U.S. citizenship is required. NIST is an Equal Opportunity employer. Contact:

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### PES/IAS

There will be an IEEE PES/IAS Personal Protective Grounding Seminar on February 2, 1990 from 1:00 - 5:00 p.m. at the U.S. Bureau of Reclamation. USBR will use the ANSI/IEEE 142-1982 green book and 80 guide for substation grounding as references. The cost will be \$45 per person. Call John Barnick at (303) 987-4264 for details.



## University of Colorado at Denver

The Division of Extended Studies and the Department of Electrical Engineering present a series of short courses in

### *Electrical Power Systems & Machines*

We are conducting a series of one-day, eight-hour short courses on topics in electrical power systems, machines, and energy. These courses serve as professional updates for practitioners in the electrical engineering field. The next course is:

#### **Transmission Line Protection**

Session One                      Friday, Feb. 23 - Denver  
Session Two                      Friday, Mar. 2 - Fort Collins

Program cost: \$225 per participant. For two or more employees from same job site: \$200 per participant. The cost includes registration, refreshments, lunch, and the course manual.

To receive a program brochure, or to be added to the short course mailing list, contact **Arne Arnesen, CU-Denver Director of Corporate Programs, 893-8521.**

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## Overlook Advertising

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### Ad Size

### Rate

	<u>One Time</u>	<u>Multiple</u>
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Full Page	\$ 400.00/mo.	\$ 360.00/mo.

Business card ads must be actual business cards. All other ads must be provided in camera-ready format or additional set-up charges may apply.

### Deadlines

March 1990 newsletter, February 2:      April 1990 newsletter, March 2:      May 1990 newsletter, April 4

Please contact: **Anita Wanberg, dba Trade Services, P.O. Box 4056, Englewood CO 80155-4056, 220-8042.**

## Success, Knowledge and Participation

by Paul Meisel

I have been asked a number of times how some Society Chapters are able to draw large attendance and others are not. There is no magical formula which can be applied, but there are some basics which I have observed over a period of years.

### Participation

I have noticed that most chapters which have large attendance at their meetings have a lot of participation from members both before and during the meeting. By before the meeting, I mean that members offer their ideas for meeting topics, suggest good to excellent speakers, and volunteer their time (however small an amount) to the planning which must occur before any successful meeting can be held. This points out that no one individual has all of the answers and ideas for meeting topics and does not know all of the good speakers available. Thus it can be assumed that the more participation of members, the more interesting the topics and the speakers who do make the presentations will be.

### Knowledge

It takes a reasonable amount of knowledge of the field of interest and the needs of the members to select topics for the audience. Brainstorming of these ideas can lead to a couple dozen topics which every electrical field has current interest in and where members need up to date knowledge. Perhaps those on the organization committee need some of the topic knowledge themselves and also recognize that others probably need wither a refresher course or an introduction to the material. Once the topic is identified, then a source for a speaker can be found. Usually a telephone call or a short letter will secure the desired speaker. A reference to another speaker can be obtained if the original one who was approached cannot oblige.

### Success

Success does NOT happen with just the topic and an excellent speaker, although these go a long way towards achieving the objective. Proper planning and promotion

(marketing) of the program are essential. A desirable location is also a necessity for insuring that the program will be well attended. Is it always necessary for these meetings to be associated with dinner? Definitely not. However, after a hard day solving engineering problems, sitting down with your peers may offer the opportunity to get suggestions to solve your problems, or at least give you a new prospective on a solution even when the program topic may be completely different from your problem. Most people like dinner meetings because they occur closer to normal quitting time and they permit members to get home at a reasonable time so they can read their mail and converse with family members.

All of these items are necessary considerations for anyone in a leadership role whether it be with IEEE or some other organization. The message which I would like to convey is that we need your help in planning programs in every technical chapter in the Denver Section. On the back of each RockIEEE Overlook is the name of the current chairperson. Take the time to call and offer your time or your ideas. I guarantee that your call will be well received.

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## The Month at a Glance

**February 2, 1990**  
PES/IAS Seminar

**February 3 - 10, 1990**  
Aerospace Applications Conference

**February 14, 1990**  
Reliability Meeting

**February 15, 1990**  
APP/MTT/GRS Meeting  
PES/IAS - EMBS Meeting

**February 28, 1990**  
Executive Board Meeting

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