

# RockIEEE Overlook



Volume 2, Number 5 February 1997

## Sitting in the Chair

by Fred Jones

This year, National Engineers Week will be celebrated during the week of February 16-22. For those of you who don't know, National Engineers Week was founded in 1951 by the National Society of Professional Engineers. It is always celebrated at the time of George Washington's birthday. Our nation's first president was a military engineer and a land surveyor.

The mission then, and now, is to increase public awareness and appreciation of the engineering profession. At the national level, there is a National Engineers Week Committee,

comprised of volunteer leaders from the engineering societies and major U.S. corporations that contribute financially to the annual event.

Nationally, two programs predominate. Discover "E" is a program in which engineers visit K-12 classrooms and show practical applications of math, science and engineering and talk with students about what engineers do. The Future City Competition is a program in which engineer-volunteers help seventh and eighth grade students design and build computer-generated cities of the 21st century. The software has

been donated and winners of local contests compete in Washington, D.C. during National Engineers Week.

This is an important event and we need volunteers to help the students use the Future City software. So, if you can squeeze a few extra hours out of your busy schedules, some future engineers can sure benefit from your knowledge and enthusiasm. For more information, contact Gary Coblenz, the Denver Section's Pre-College Student Activities Committee Chair, at 388-6322.

## From the PACE Chair

by John C. Tsucalas, IEEE Senior Member

As the Denver Section Professional Activities Committee for Engineers (PACE) Chair, I am but one node in a network of IEEE professionals that includes you, the members, other section officers and committee people, region and technical society officers, officials in Washington and Piscataway, and ultimately, the public. It's a labor intensive activity that I am still learning how to do, but I will try to bite off one piece at a time.

One of the main activities of the PACE network is to influence the legislative process, at both the state and federal levels, in matters that directly affect engineers and their professional environments. The issues include everything from U.S. competitiveness in the world marketplace, to retire-

ment income and pension reform, to state requirements for licensing engineers. The IEEE does this by awarding congressional fellowships, developing technology policy and career policy position statements, providing learned information and advice to legislators and government officials on technical and scientific subjects, and by lobbying.

One mechanism for influencing legislation is through the American Association of Engineering Societies (AAES) in which the IEEE plays a major role. The AAES is an organization of engineering societies whose aim is to advance the knowledge, understanding, and practice of engineering. In this way the societies offer a coordinated and unified front linking over 800,000 member engi-

neers to the public and the government. The AAES establishes its member and associate societies as preeminent resources on technical and professional issues and has them provide expert testimony on selected issues. It creates opportunities for dialogue with and technical guidance from engineers, promotes the positions of its member societies, and it forms coalitions with other concerned organizations on priority issues.

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## Meetings

### Lasers and Electro-Optics

Thursday, February 20, 1997  
7:00 p.m. Refreshments  
7:30 p.m. program

NIST, Room  
325 Broadway, Boulder, Colorado

#### Speaker

Dr. Kam Lau  
Berkley University

#### "Microphotonic Adaptive Opto-Electronic Packages"

Call Andy Aust at 497-3942 for additional information.

Upcoming LEOS Meetings to be held at NIST in Boulder.

#### March 20, 1997

Dr. Tingye Lee, New Focus  
"Evolution & Revolution in Lightwave Communications"

#### April 17, 1997

Dr. Kevin Lear, IEEE/LEOS  
Distinguished Lecturer  
"High-Efficiency Vertical Cavity Surface Emitting Lasers"

#### May 15, 1997

Dr. Gary Bjorklund, OSA Speaker  
Title to be determined.

### Joint Antenna & Propagation/Microwave Theory & Technology, Geoscience & Remote Sensing

Tuesday, February 18, 1997  
4:00 - 5:00 p.m.

NIST, Room 4020  
325 Broadway, Boulder, Colorado

#### Speaker

Dr. Ronald R. DeLyser  
Department of Engineering  
University of Denver

#### "Evaluation of Optical Systems: Which Computational Method Should Be Used?"

The Air Force is interested in determining the vulnerability of optical systems to high power microwave radiation. Since the testing of such systems is not always feasible, computational methods have to be employed. Three methods, the Finite Element Method (FEM), the Method of Moments (MOM) and the Finite Difference Time Domain Method (FDTD) have been used for the evaluation of a Celestron-8 telescope and an optical sensor on various satellites. The author will present the capabilities of the three software packages, their limitations, and some results of the analyses of the two optical systems.

Call Richard Geyer, 497-5852 for additional information.

### Joint Power Engineering /Industry Applications

Thursday, February 20, 1997

#### Plant Tour of Tri-Gen Power Generation Facility at Coors Brewing Company

Host: Dennis Capps, Tri-Gen

5:00 p.m. - Meet in Training Room, Beverage Sampling, Snacks

5:30 p.m. - 6:30 p.m. Tour

Brewery Office Building, 2nd Floor Training Room, Guest Relations

Call Barbara Linton, 388-6322 for make reservations for meetings/tours.

#### Upcoming Events

March 20, 1997: "Overvoltage Protection"

April 17, 1997: Seminar - "Industrial Grounding"

May 15, 1997: Tony Jefferson - "Adaptive Var Compensation"

### Electromagnetic Compatibility Society

### 7th Annual Regional Conference

The Rocky Mountain Chapter of the Institute of Electrical and Electronic Engineers (IEEE) Electromagnetic Compatibility (EMC) Society will hold its seventh-annual regional symposium on Friday, March 7, 1997 at the National Institute of Standards and Technology in Boulder, Colorado. Informal papers will be presented on various EMC topics such as:

Printed Circuit Board Design  
Grounding  
Cabling  
Shielding  
Electromagnetic Interference  
Radio-frequency Immunity  
Electrostatic Discharge  
Lightning  
Powerline Disturbances  
System-level EMC  
Medical Electronics  
Test Facilities  
Instrumentation  
Standards

The symposium will begin at 8:30 a.m. in room 1-1107. A \$5.00 registration fee will be collected at the door. For additional information, contact:

Robert F. German  
German Training and Consulting, LLC  
1410 Moss Rock Place  
Boulder, CO 80304  
Telephone/Fax: (303) 444-2472

## PES/IAS JOINT CHAPTER Insert to RockIEEE OVERLOOK

Thursday, April 17, 1997

### Fundamentals of Grounding - Part II Design and Applications for Industry

A One Day Seminar By:

**Chuck Mello, SET**  
**Director of Training and Standards**  
**Electro-Test, Inc.**

Chuck Mello became a NETA (International Electrical Testing Association) certified test technician in 1978, and test technologist in 1985. He was NICET (National Institute for Certification in Engineering Technologies) certified as a CET (Certified Engineering Technician) in 1985, and SET (Senior Engineering Technician) in 1992 with a specialty in Electrical Power Systems Testing. Chuck was accepted in July 1995 by the NFPA Standards Council to be the NETA representative on the NFPA National Electrical Code panel 5, article 250 grounding. Chuck Mello is considered an authority in grounding system design and functionality.

#### SEMINAR OUTLINE:

- Basic Concepts and Grounding Techniques
- Grounding System Design Principles
- Computer Based Design Procedures
- Integrated Grounding System Design
- Soil Characteristics
- IEEE Std 80 Design Procedures
- Effects of Grounding Transients

Time: 7:30am - 5:00pm

Location: 938 Bannock, Downtown Denver, PSCO Training Facility, Main Training Room on the first floor.

Parking: Across the street in front of and behind building, PSCO parking slots only.

#### FEES

IEEE Members \$95.00

Non Members \$190.00

**APPLICATION:** Please cut off at the dotted line and send this completed registration form with the enclosed check no later than April 3, 1997 to address shown below.

Seminar: Fundamentals of Grounding

Name \_\_\_\_\_  
Home Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
IEEE Membership Number: \_\_\_\_\_  
(must be included to get IEEE rate)

Make Checks payable to:  
IEEE PES/IAS Joint Chapter, Denver Section

Send Check with completed application to:

Robert Randall  
c/o Coors Brewing Company, BC 510, Golden CO. 80401

Company \_\_\_\_\_  
Business Phone \_\_\_\_\_

Lunch: (Circle one of the following choices)

- (1) Roast Beef Sandwich
- (2) Turkey Sandwich
- (3) Ham Sandwich
- (4) Vegetarian

Questions  
-- Call: Robert Randall @ 303 277-2040



## MoCon Scheduled 21,22 March

by Jim V. Leonard

The spring Missouri Conference (MoCon) has been scheduled for 21, 22 March, 1997 (Friday, Saturday) at the St. Louis Engineers' Club. Tutorials will run from 8:30 a.m. to 5:30 p.m. with lunch provided. The cost is \$300.00 for a full day tutorial and \$150 for a half-day tutorial. IEEE members receive a \$50.00 discount for a full day tutorial and \$25.00 for a half-day tutorial. Students may attend at 1/4 cost and unemployed IEEE members of the St. Louis Section may attend for free. The preliminary Spring Program was distributed at the Fall MoCon and at IEEE Sections Congress, 1-4 November in Denver, Colorado. The final Spring lineup is as follows:

### Friday, 21 March, 1997

1. Electrical Overcurrent Protection	Full Day
2. Software Testing and QA	Full Day
3. Computer Aided Design	Full Day
4. Transmission Systems Planning, Control & Regulation	Full Day
5. Digital Logic Synthesis with VHDL, Day 1	Full Day

### Saturday 22 March 1997

6. Reliability in Electronic Design	Full Day
7a. Use and Application of Phase-Locked Loops	Half Day
7b. Sensors, Instr., and Signal Conditioning	Half Day
8. JAVA and HTML	Full Day
9. Into to Global Positioning Satellites	Full Day
10. Introduction to Databases and Database Mining	Full Day
11. Principles of Power Electronics	Full Day

These are the final plans for the Spring 1997 MoCon. We would like to hear from you on tutorials of interest. Please contact Jim Leonard at (314) 925-6828 with your inputs/questions and registration forms for Spring 1997 MoCon.

## PACE

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In Colorado, a similar function is performed by the Colorado Engineering Council (CEC). It also unites the local sections and chapters of engineering organizations at the state level to work with our representatives and other state administrators. I had the pleasure of attending the last CEC meeting on January 8th along with our new Section Chair, Fred Jones. Among a number of discussion items, one legislative issue dealt with the "privatization" of engineer registration and licensing proposed by Reps Mark Paschel and Pinsler. That is, having industry take over its own qualification of professionals. A specific proposal is to model the self regulation on the so-called "Delaware Act", where a certification board, drawn from industry, academia, and government, would be elected by practicing engineers. The board would then screen candidates and have the certification issued. There was considerable concern expressed at the meeting about "doing it right" so that the integrity of the procedure in licensing truly competent individuals is the highest priority, and that the right balance is struck between those who must be certified and those whose work does not require it.

If you have concerns in these areas please feel free to contact me at (303) 798-5769 or e-mail: jtsucalas@aol.com to get more information or to take an active part in these issues. If you are interested in the national agenda, try accessing the web at <http://www.ieee.org/usab> and explore the Policy Forum.

## 1997 Region 5 Meeting

The Denver Section will be hosting the Region 5 Meeting on April 11-13 at the Hyatt Regency in Downtown Denver. Officers from each section in Region 5 will attend.

Activities which will be held in addition to the business meetings of the Region are a student paper contest, student Judges are needed for the paper and design contests.

Contact Clifford Alston (303) 971-9020 if you would like to participate as a judge.

Technical seminar topics will be announced in the March Overlook.

## Do Your Electronics Technicians Need More Training?

Send your electronics technicians to Arapahoe Community College. You'll find their training program to be affordable, efficient and effective. The three-year, associate degree, evening program is paced to accommodate a full-time work schedule. Well-equipped labs and faculty with years of experience in industry assure that graduates will possess the knowledge and skills necessary to become a productive team member. Technicians are trained to build, test, trouble-shoot and repair circuits and systems.

ACC can also partner with you in training your electronic technicians through our certified industrial apprenticeship training program in electronics technology. Apprentices receive their classroom training through the College and gain hands-on training in an on-the-job work setting at your location.

If you'd like more information about the electronics training options at Arapahoe Community College, call 797-5717.



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<http://www.engr.du.edu/ieee/densec.html>

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