

RockIEEE Overlook



THE INSTITUTE OF
ELECTRICAL AND
ELECTRONICS
ENGINEERS, INC.

Denver Section

April, 1990

Chairman's Message

by Jack Reesy

I am pleased to report that the Denver Section is in sound financial condition. The Audit Committee report for fiscal 1989 indicates a surplus of \$3,004. The year end assets are \$18,122 in the General Fund, \$4,821 in the Awards account, and \$17,042 in the Student Fund.

The Awards and Student Funds are endowments under separate Committee control from the General Fund, which provide funding for those functions of the Denver Section. If you have specific questions regarding the Section, please call me or any of the Section Officers.

The Student Fund sponsored activity in March was the Student Paper Contest. Unfortunately, I do not have the results at this writing. In addition, the "Walking Machine project at CSU is receiving assistance from the Denver Section.

The next Executive Board meeting will be:

March 28, 1990
Diamond Hill Office Complex
Room 100, Building D
7:00 p.m.

Anyone within the Denver Section is welcome to attend these meetings.

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, April 19, 1990

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

Speaker

T.H. Miers

Ball Communication Systems Division
Broomfield, Colorado

"Wafer Level Microwave/Millimeter Wave Measurements in the MIMIC Phase 3 Program"

Ball Communication Systems Division (BCSD) presently is under contract for MIMIC Phase 3 technology development in the area of wafer level testing. This presentation will cover an overview of GaAs MIMIC technology at BCSD and will summarize the current work in progress on the MIMIC Phase 3 program. The program objectives are twofold. The first is to develop interim wafer level (planar) standards traceable to NIST for both microstrip and coplanar waveguide transmission media on GaAs. The second is to design and fabricate wafer level probes operable in the 50-75 GHz waveguide band and to demonstrate measurements of GaAs devices at these frequencies.

Reservations are not required. Please call John Dunn at 492-5487 if you have any questions.

Joint PES/IAS

Power Engineering/Industry Applications

Thursday, April 19, 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

Speaker

Joe Leoni

Electrical Engineering Motor Consultant
Baker Instrument Company

"Insulation Polarization Index Testing; The Most Misunderstood Motor Test"

In the field of motor testing, one of the most important tests that can be performed on a motor is the status of the motor insulation. This test can be performed when the motor is new, newly rebuilt, or as routine maintenance. The question is, with the advances in insulation technology available today, is the polarization index test a "fact or fiction". Mr. Leoni will address this issue and discuss the IEEE standards on motor polarization testing related to technology today.

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

Front Range Software Quality Committee of the Reliability Society

Wednesday, April 25th

Guarantee National Insurance Offices, Englewood, Colorado 2-4 p.m.

Speaker

Dale Butler, Martin Marietta

"QFD, Quality Function Deployment for Software"

Please call Rick Karcich at (303) 673-6223, for more information.

1990 IEEE Area A Student Paper Contest

by Don Cottrell

The Area A Student Paper Contest took place on March 3, 1990, at the University of Colorado in Boulder. The winners of the prizes donated by the Denver Section of IEEE are listed below. The first and second place winners will go on to the Region 5 contest.

First Place

Scott Hunt

Air Force Academy

\$150, and an HP41CX Calculator

Second Place

Robert Schultz

South Dakota School of Mines & Technology

\$100 and an HP32S Calculator

Third Place

James Turan

New Mexico State University

\$75

Black Hills Subsection Reorganized!

from Mike Pendo, Secretary

The Black Hills Subsection of IEEE is making an effort to reorganize. The following people were elected at the November Subsection meeting.

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South Dakota Tech.

(605) 394-2452

Vice Chairman

R.L. Erickson

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(605) 342-4252

University of Colorado at Denver

The Division of Extended Studies and the Department of Electrical Engineering present

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:

Symmetrical Components: Theory & Applications

Session One

Friday, April 20 - Denver

Session Two

Friday, April 27 - 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.

Precollege Education in the United States

... Continued from the March Overlook

- By the mid-1990s there will be fewer young people to enter the work force. These young workers will have to be highly productive to keep our economy growing and to maintain our standard of living, which means they will have to be versatile and well-educated. If we are to continue as an advanced industrial society and world leader, many young people must join science and engineering professions.

The nation's leadership in science and engineering cannot be maintained unless the education pipeline is repaired, so it can yield a larger and more diverse group of world-class scientists and engineers at all levels.

What Scientists and Engineers Can Do to Help

If you are a scientist or an engineer, volunteer in one of the many ongoing programs that allow scientific and technical professionals to share their knowledge with students and teachers. Work with others to initiate such programs, if non exist in your area. To get started, select a volunteer activity from the list below or develop one of your own, based on your skills and interests.

Offer your services to the sponsors of existing national or local programs. Contact your school's principal or career education office to see how you can assist in ongoing programs.

Activities you may want to consider include:

* **Classroom demonstrations and presentations** - Volunteer to speak to students about your career or about a specific technical topic. The presentation can be a one-time event or part of an ongoing series. Several speakers can form a panel to present information and answer students' questions about careers in different science and engineering disciplines.

* **Club sponsorship** - Become a leader or sponsor of an existing science or technology club; or start something new, such as a Boy Scout Career Awareness Exploring Post or a Junior Engineering Technical Society (JETS) Chapter.

* **Field trips** - Lead a group of students and teachers on a field trip to your place of employment.

* **Mentorship programs** - "Adopt" students who are interested in your engineering or science discipline. Invite them to visit you at work. Offer advice on educational and career decisions.

* **Industry Internships for students and teachers** - Provide an extended work experience (paid or volunteer) for a student or teacher at your place of employment. It can be a one-week observation, a spring-break project, or a summer job. Teachers will gain valuable technical information as well as renewed enthusiasm to take back to their classrooms. Students will get an important exposure to what it's like to "work" at an engineering or science job, as well as a valuable life experience.

* **Teacher training seminars** - Enlist members of your organization or other colleagues to put on a seminar or a series of talks on specialized technical topics of current interest, such as, superconductors or artificial intelligence. Provide teachers with materials and enough technical information to be able to incorporate the topic into their science curriculum.

* **Science fair participation and contest judging** - Volunteer to serve as a judge for your school system's science fair or for one of the science or math competitions held in your area, such as Math Counts, Science Olympiad, or Chemistry Olympics. Find out about starting a competition in your area, if none are currently held.

* **Tutoring** - Volunteer to tutor a junior high or high school student in math or science. The frequency and length of this activity will vary depending on the student's need.

What Everyone Can Do to Help

Everyone needs to take part in improving precollege science and technology education in the United States. All individuals can help through:

* **School boards** - Attend meetings of your local school board.

* **Curriculum modification** - Encourage school administrators to modify precollege curricula, so children will be better prepared for college jobs when they graduate from high school.

Become familiar with the admission requirements of colleges and universities in your area. Suggest modifications that you feel will motivate the precollege system to place greater emphasis on math, science, technology, and communication skills from kindergarten through twelfth grade.

* **Raising Standards** - Encourage university administrators to upgrade admission and graduation standards for students preparing to become elementary and high school teachers. Urge your elected officials, especially at the state level, to work toward raising teacher certification standards for math and science teaching. Communicate your support for greater teacher and principal accountability.

Reprinted from A Passport to Opportunity, Strategies for Improving Precollege Education, IEEE United States Activities.

The Colorado Science Olympiad

from John Matis

The Colorado Science Olympiad is an academic interscholastic competition designed to increase student interest in science and improve the quality of science education. The Science Olympiad tournament consists of a series of approximately twenty-five individual and team events for which students prepare during the year. The competitions follow the format of popular board games, TV shows, and athletic events. These challenging, yet fun, events are very motivational. The events are balanced between facts, concepts, process skills, and applications.

Although the Science Olympiad is a competitive activity, most events are team competitions which require teamwork, group planning, and cooperation. The emphasis is on learning, participation, interaction, and having fun. Coaches and students are reminded of the words of Bill Koch, (Olympic Cross Country Ski medal winner) who said, "Winning isn't everything. The striving for excellence is -- it's trying and caring that is important -- winning is a bonus."

The Colorado Science Olympiad is scheduled in three parts. The Northern Regional competition took place on March 3, 1990, at the Colorado School of Mines. The Southern Regional competition took place on March 10, 1990 at the University of Southern Colorado. And the final, State Event is scheduled for April 28, 1990 at the University of Colorado in Boulder.

The Northern Regional competition of the Colorado Science Olympiad which took place on March 3, had 29 Jr. High School teams and 23 Sr. High School teams for a total of 52 teams competing.

All of the exhibits were excellent. Some of the more interesting individual events included "Science Crime Busters" which was supervised by the Denver Police Crime Lab, "The Scrambler", the design of a car powered by the weight of a falling brick, and the Circuits and Physics Labs involving equipment normally used in commercial laboratories. And of course "Bridge Building" and "Science Bowl" had a high level of interest as usual. The "Anatomy" event was well designed this year and gained high marks from all the participants.

There is no information yet on the Southern Regional competition. A report will be included in the May Overlook.

Following are the winners of the Northern Regional competition:

Jr. High - Division B

1st Place - **Dunstan Jr. High**, Jefferson County

2nd Place - **Burbank Jr. High**, Boulder Valley School District

3rd Place - **Northglenn Jr. High**, Adams County District 12

Sr. High

1st Place - **Overland High**, Cherry Creek School District

2nd Place - **Fairview High**, Boulder Valley School District

3rd Place - **Bear Creek Sr. High**, Jefferson County

"Automated Tools for Software Reliability"

The 8th Annual Software Reliability Symposium
Ford Aerospace, Colorado Springs

May 18, 1990

Call Rick Karcich, (719) 673-6223, or
Juan Hernandez, (719) 590-8880 x 410

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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. Inserts must be provided (quantity approx. 3800) and delivered to the printer.

Deadline

May 1990 newsletter, April 4

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, 220-8042.

Schedule of Conferences and Meetings

| | | | | |
|------------------------|----------------|--|---------------|----------------|
| April 17 - 20, 1990 | Vail | 13th Annual IEEE Workshop on Design of Testability | T.W. Williams | (303) 924-7692 |
| April 23 - 25, 1990 | Denver | Indium Phosphide & Related Mat. | Jim Coutts | (303) 231-1261 |
| May 18, 1990 | Colorado Spgs. | 8th Annual Software Reliability Symposium | Rick Karcich | (303) 673-6223 |
| June 17 - 21, 1990 | Colorado Spgs. | Utilities Communications | J. Hernandez | (719) 590-8880 |
| March - April, 1991 | Fort Collins | Region 5 Conference | George Stoll | (303) 571-2677 |
| April 28 - May 2, 1991 | Boulder | PES Substation Com. Mtg. | Tom Mills | (303) 229-3737 |
| June 23 - 27, 1991 | Denver | International Communications Conference | George Flaig | (303) 452-6111 |
| May 11 - 13, 1992 | Denver | Vehicular Technology Conf. (VTC '92) | Russ Johnson | (303) 796-9100 |
| Sept., 1995 | Denver | Petroleum & Chemical (PCIC) | Don Cottrell | (303) 871-3752 |
| | | | John Nelson | (303) 431-7895 |

Proposed Conferences and Meetings

IAS 1994 - 1995
ACM/IEEE Design Automation 1994
PES Joint Power Generation 1994
PES Summer Meeting 1995
MTT 1997
Transmission & Distribution 1997
ITC 1997-2000

IEEE/ISHM Colorado High Tech Competitiveness Forum May 10, 1990

The IEEE and ISHM (International Society for Hybrid Microelectronics) are planning a "Colorado High Tech Competitiveness Forum" on Thursday, May 10, 1990. The event will last all day from 8:30 a.m. to 4:30 p.m. at the Stapleton Plaza Hotel at 3333 Quebec in Denver near the Stapleton Airport. This is a joint venture between the Denver and Pikes Peak IEEE Sections and the ISHM. John Meredith of Hewlett Packard Company is the committee chairman for this event. The objective of the forum is to bring Colorado leaders in high-tech industry, engineering education, K-12 education, and government together to focus on competitiveness issues. Presentations by leaders in these fields will give the attendees a clear picture of competitiveness issues. The forum will result in a better understanding of what we must do in Colorado to improve our competitive stance in a global market place. The forum will also point out the need for partnerships between leaders in education, industry, and government.

A recent report by the Council on Competitiveness suggests that United States leadership in high technology is an "illusion". The report indicated that the United States showed a trade deficit in high-technology goods for the first time in 1986. Today, American firms hold just 5% of the domestic consumer electronics market.

This trend, if not checked, will have serious consequences on the standard of living for all Americans. We must provide American products in a competitive, worldwide market place. This means that the United States has to become more productive through investments in education, R&D, plants, and equipment. Government policy makers must set policies that will encourage these investments. We in industry, education, and government must work together to achieve a more productive nation!

Forum Topics and Speakers:

"Role of Foreign Trade in Keeping Colorado Competitive"

Mr. Morgan Smith
Colorado Director of International Trade

"Competitive Issues in University Education"

G. Gordon Gee
President, University of Colorado
Member Council on Competitiveness

"Role of High Tech Industry in Colorado"

Dr. Richard L. Petritz

"Science and Mathematics Education in the K-12 System"

Bob Stack, Science Teacher
Greeley School System

"Educating Our Engineers For the Future"

Dr. Richard Gowan
President, South Dakota School of Mines and Technology
Past President of IEEE

"Role of Government in Keeping Colorado Competitive"

Dr. Phil Bradford
Director, Colorado Advanced Technology Institute

"Your Role In Keeping Colorado Competitive"

Mr. James Gover, Sandia Corporation

"A State Legislator's Point of View"

State Senator Mike Bird

Master of Ceremonies

Dr. Edward Bernolli
Chairman of IEEE United States Activities
Board National Government Activities Committee

The cost of attendance of the forum, which includes lunch and two breaks, is \$75.00. Those wishing to attend should contact the following people for registration and more information.

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Don Cottrell, Univ. of Denver (303) 871-3752

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The Month at a Glance

April 17-20, 1990

Design of Testability Workshop

April 19, 1990

APP/MTT/GRS Meeting

PES/IAS Meeting

April 23-25

Indium Phosphide Conference

April 25, 1990

Front Range Software Meeting

April 28, 1990

State Science Olympiad

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