

RockIEEE Overlook

Newsletter of



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

October 1991

Joint Denver Section/Colorado School of Mines Student Chapter Tour of the Automated Systems Lab Colorado School of Mines

After a brief election meeting for the 1992 IEEE Denver Section officers, students will give a description of the work accomplished by them this summer under the Research Experiences for undergraduates (REU) program which is funded by the National Science Foundation. Projects worked on by the REU students include design and construction of a 3-axis robot (called Grover), a 2-D, vision-based robotic tracking system,

modeling of a flexible robot arm and a micromouse. We will then adjourn to the Automated Systems Laboratory to see the demonstrations of these projects.

WHEN: Wednesday, October 16, 1991
6:45 p.m. Dinner, 7:30 p.m. program

WHERE: George R. Brown Hall, Room 204A
17th & Illinois Streets
Colorado School of Mines Campus
Golden, Colorado

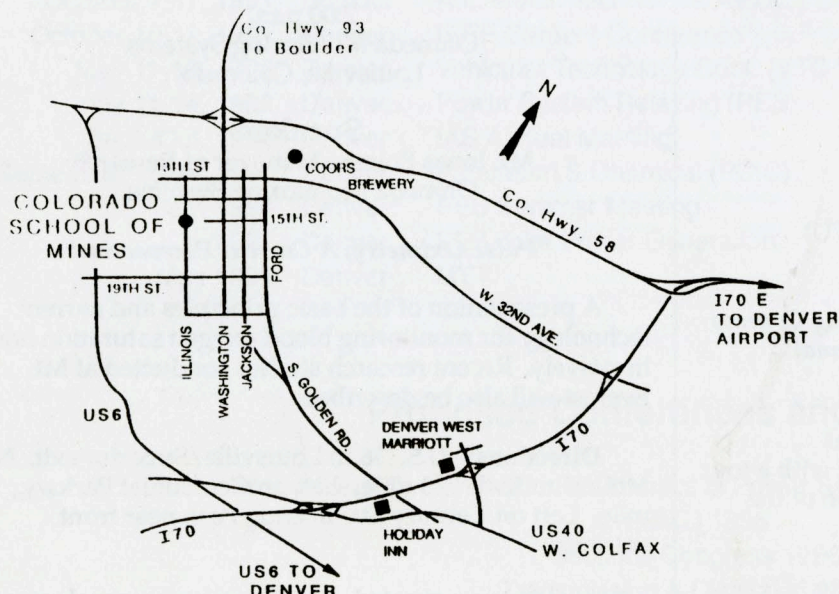
PARKING:

Use the lot behind the building or
park on the street

COST: Pizza dinner
\$ 6.00 members
\$ 3.00 students

RESERVATIONS:

Please call Anita at 220-8042 with
your reservations not later than
Monday noon, October 14, 1991.



Society Chapter Meetings and Information

VTS/COMSOC Joint Vehicular Technology and Communications Societies

Wednesday, October 9, 1991

Dinner 6:30 p.m., (call for location)
Program 8:00 p.m.
US WEST Advanced Technologies
4001 Discovery Drive, Boulder

Speaker

Greg Beveridge
Chief Engineer

US WEST Advanced Technologies

"New Communication Technology"

Contact John Hardzinski, 977-2224 for further details.

.....

CS/ITS Joint Computer/Information Theory Societies

Wednesday, October 9, 1991

7:00 p.m.
National Technological University
Fort Collins, Colorado

Speaker

Roy Matson
National Technological University (NTU)
Fort Collins, Colorado

*"The Program and the Technology: Broadcasting Courses
with Digital Compressed Video at National
Technological University (NTU)"*

Roy Matson will present the latest in Digital
Compressed Video transmission at NTU, along with a tour
of the facilities. Following will be a presentation of the
types of courses and programs offered by NTU.

For more information, including directions to NTU,
contact Bryce Chapman at (303) 673-4762.

EMC Electromagnetic Compatibility Society

Tuesday, October 15, 1991

7:00 p.m.
Hewlett-Packard, Loveland
Go to building C lobby. Use Visitor parking.

Speaker

Ed Bronaugh, National President, IEEE/EMC Society

*"Current Status of Proposed FEC-VDE-CISPR
Regulations"*

A short tour of the Environmental Test Area will fol-
low the meeting.

Contact Ev Evans, 761-9447, Mark Lapchak, 773-4626, or
Bill Bryant, 977-6578 for more information.

.....

EMBS Engineering in Medicine and Biology Society

Wednesday, October 16, 1991

7:00 p.m.
Ohmeda Monitoring Systems
Louisville, Colorado

Speaker

Mr. Jonas Pologe, Manager of Research
Ohmeda Monitoring Systems

"Pulse Oximetry, A Current Perspective"

A presentation of the basic principles and current
technology for monitoring blood oxygen saturation non-
invasively. Recent research studies conducted at Mt.
Everest will also be described.

Directions: U.S. 36 to Louisville/Superior exit. N on
McCaslin Blvd, 1/3 mile. Left on Centennial Parkwy., 1/2
mile. Left on Century Dr. to end. Park near front
entrance.

Reservations requested. Non-members are welcome to
attend. Please call Jim Heller at 790-9010.

Chairman's Message

by Gary A. Petersen

Wanted !!! A Closer Tie to Our Student Branches

Did you know that the Denver Section includes eight
Student Branches? Our Section membership includes
approximately 500 student members at Colorado School of
Mines, Colorado State University, University of Colorado
Boulder, University of Colorado Denver, University of
Denver, Metropolitan State College, South Dakota School
of Mines and Technology and the University of Wyoming.

The Denver Section supports the Student Branches
with funding for special projects, judging and awards for
student paper and design contests and networking for
career development through attendance at Chapter meet-
ings. A recent example of special project funding was a
Section contribution to the Colorado State University
Student Branch in support of their walking machine pro-
ject.

We want to enhance our relationship with the Student
Branches and you can help. We are looking for interested
IEEE members willing to serve as Student Branch mentors.
Student Branch mentors will volunteer a little time to meet

with one Student Branch on a regular basis to facilitate
interaction between the Denver Section and the Student
Branch. The mentor will provide a line of communication
between the Student Branch and the Section, career guid-
ance, and information on IEEE opportunities after gradua-
tion.

If you are interested in being a Student Branch mentor,
(perhaps with your alma mater) please contact Doyle
Ellerbruch at 556-4007 or call me at 329-1506.

Please note that the Colorado School of Mines is host-
ing the October Section meeting with a tour of their elec-
trical engineering/robotics laboratories. This will be a
great opportunity for all of us to get in touch with our
Student Branch members and find out what's happening
at the School of Mines.

Schedule of Conferences and Meetings

October 7-11, 1991	Boulder	Ant. Meas. Techniques Assoc.	Mike Francis	(303) 497-5873
October 10-11, 1991	Denver	IEEE Careers Conference	Bill Whipkey	(303) 830-4713
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
Sept./Oct. 1994	Denver	IAS Annual Meeting	Paul Meisel	(303) 469-2161
September 10-14, 1995	Denver	Petroleum & Chemical (PCIC)	John Nelson	(303) 431-7895
July, 1996	Denver	PES Summer Meeting	John Barnick	(303) 969-0391
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) 1994-1996
ESMO 1996
Sections Congress 1996
Transmission & Distribution 1997
ITC 2000

Call for Volunteers

IEEE-USA's Precollege Education Committee is in the process of establishing a discipline-based Volunteer Student Guidance Network and is looking for volunteers who are willing to serve as resource persons. If you enjoy counseling high school students and would be willing to answer an occasional request for career information in your particular area of experience, we need your help.

For more information, please complete the bottom of this sheet and return it to the address shown.

Name: _____

Address: _____

Phone: (work) _____ (home) _____

Employer: _____

Brief description of technical specialty/area of expertise: _____

Brief description of current job description: _____

Return to:
A. Hartfiel
IEEE-USA
1828 L Street NW, Suite 1202
Washington, DC 20036

IEEE-USA SPONSORED CAREER TRANSITIONS WORKSHOP

"Managing yourself through job or career turbulence"
for Engineers and Engineering Managers
SATURDAY, OCTOBER 12, 1991

"Now that changes are taking place, what do I do in order to feel I have some control over my work and my career?"

The 90's are times of rapid change in industry. Many engineers are experiencing doubts about their future. Often they find themselves in a period of career crisis and confusion as the result of reorganization and redeployment.

In the mist of upheaval, the process of working through the changes and the uncertainty is difficult for people to manage on their own. All too many of these changes in organizations are planned with little attention to the effect on the people or how people should move forward in their career or their job.

Generally, organizations and individuals expect that their major concerns will disappear once they survive the immediate change. In fact, the period of turbulence continues long after organizations or individuals expected. It is as if shock waves were sent out which continue to generate turbulence, pain and frustration to the individual employee.

This workshop is designed for engineers and engineering managers who are involved in major changes in their organizations, their job or their careers. First, the process offers participants an understanding of the painful transitions they are experiencing in order to assist them in surviving the immediate turbulence.

Next, in order to move forward the workshop participants will look at the creative possibilities that can emerge out of a managed career transition.

Finally, they will test some career ideas through a networking process. The workshop's goal is to help participants not only survive, but perhaps thrive during the changes that may continue to come their way.

The career transition workshop will be held at the end of the IEEE-USA 7th Biennial Careers Conference October 10-11 at the Denver Radisson. Cost for the workshop is \$50 for those employed, \$25 for the unemployed. For more information on the content, call Bill Whipkey @ (303) 830-4713. To register for the workshop, call Bill Anderson @ (202) 785-0017.

Call for Volunteers

IEEE-USA's Precollege Education Committee is in the process of establishing a discipline-based Volunteer Student Guidance Network and is looking for volunteers who are willing to serve as resource persons. We are currently seeking high school seniors who are interested in an occasional request for career guidance. If you are interested, please contact the committee for more information.

For more information, please complete the bottom of this form and return it to the address shown.

Name: _____
Address: _____

Phone: (work) _____
(home) _____

Generally, organizations and individuals expect that their major concerns will disappear once they survive the immediate change. In fact, the period of turbulence continues long after organizations or individuals expected. It is as if shock waves were sent out which continue to generate turbulence, pain and frustration to the individual employee.

This workshop is designed for engineers and engineering managers who are involved in major changes in their organizations, their job or their careers. First, the process offers participants an understanding of the painful transitions they are experiencing in order to assist them in surviving the immediate turbulence.

Next, in order to move forward the workshop participants will look at the creative possibilities that can emerge out of a managed career transition.

Finally, they will test some career ideas through a networking process. The workshop's goal is to help participants not only survive, but perhaps thrive during the changes that may continue to come their way.

The career transition workshop will be held at the end of the IEEE-USA 10th Biennial Careers Conference October 10-11 at the Denver Radisson. Cost for the workshop is \$50 for those employed, \$75 for the unemployed. For more information on the content, call Bill Whiskey @ (303) 830-4713. To register for the workshop, call Bill Anderson @ (303) 782-0017.

A. Harila
IEEE-USA

1628 L Street NW, Suite 1202
Washington, DC 20036

Society Chapter Meetings continued . . .

Joint MTT/AP/GRS Microwave Theory and Techniques, Antennas and Propagation, Geoscience and Remote Sensing

Thursday, October 17, 1991

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

Speaker
Ronald H. Ono
Cryoelectronic Metrology Group
National Institute of Standards and Technology
Boulder, Colorado

*"High-Temperature Superconductors:
Progress Toward Electronic Applications"*

Recent advances in a number of laboratories world-wide have lead to renewed enthusiasm for electronic applications of high transition temperature superconductors such as YBa₂Cu₃O_{7-x}. Our group at NIST is now making active and passive integrated microelectronic devices using thin films of YBCO; other groups have concentrated on rf and mm-wave circuits. This talk will be a brief review of the state-of-the-art, with emphasis on the research areas under investigation at NIST.

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

Joint PES/IAS Power Engineering/Industry Applications

Thursday, October 17, 1991

Tour of Cherokee Power Plant
6198 Franklin St.
No Dinner is planned in connection with this meeting.

Please arrive between 5:45 and 6:00 p.m.; allow about an hour for the tour.

The main gate to the Cherokee Plant is at 62nd Ave. and Franklin; take the 62nd Ave. exit off of I-25 and go east approximately 3 miles to Franklin St. The plant entrance gate is directly in line with 62nd Ave. There will be someone at the gate to direct you to the tour. Please plan on arriving between 5:45 and 6:00 p.m. as the gate is not normally attended.

The Cherokee power plant is located in the heart of Denver and is a major power plant on the Public Service Company of Colorado's electric system. Please wear clothing that you wouldn't mind getting a little dirty. High heeled shoes should not be worn; wear comfortable walking shoes. There are some areas of the tour that involve walking around elevated structures that would not be recommended for anyone afraid of heights. This tour will be popular, so please make your reservations early.

Please contact Barbara at Peterson Company, 388-6322, by noon Tuesday, October 15, 1991. The tour will be limited to 35 people. If you have made reservations and cannot make the tour, please call and cancel before the deadline.



FRSWQC Front Range Software Quality Committee of the Reliability Society

Friday, October 18, 1991

2:00 - 4:00 p.m., Storage Technology Corporation, Building 4

Speakers
Jim Jost and Len Schroath

"Module Complexity and Error Proneness"

Jim and Len will present their findings in challenging Tom McCabe's assertion of error proneness of modules written in C with cyclomatic complexities above 10. They studied three released products, correlating module complexities with post-release problem reports.

Case Study

The Twin Cities Chapter

The Computer Society Chapter of the Twin Cities Section of the IEEE, with assistance from local IEEE-EMB and Reliability Chapters, and the SigArt group of the ACM successfully conducted a five-session symposium, January through May, 1986. The sessions drew over 100 attendees each, and the sponsoring organizations realized a positive financial condition at the conclusion of the series.

The five sessions, which featured a combination of national and local speakers and panelists, were conducted at a hotel adjacent to the Minneapolis campus of the University of Minnesota.

Program

The first session was a weekday evening dinner lecture-style presentation by Prof. James Slagle of the University of Minnesota, "An Overview of Artificial Intelligence." The second through fifty sessions were all-day Saturday affairs, at one month intervals, held February through May. The format was that of a morning tutorial, presented by a nationally-known speaker, lunch, and an afternoon panel discussion, with presenters mostly from local companies or schools. Also, a vendor presentation area and vendor exhibits were available, and each session had several companies presenting hardware and software systems.

Logistics

Organization for the series began in February of 1985, with a group of TC Computer Society officers and past officers. A rough format was proposed, and financial goals including cost targets and break-even attendance criteria were established. Officers and other interested persons from the other organizations were recruited for

planning and execution assistance. By early summer of 1985 a twelve-person committee was formed. An outline of the four main AI sub-disciplines to be covered was decided upon; those included AI programming languages and techniques, expert systems, vision and image processing, and natural languages and man-machine interface. Persons were assigned to posts of treasurer, speaker/panelist coordinators, publications/publicity, registrations, site arrangements/vendor relations, notes and hand-out materials, registration and attendees guidance. Each session had a different committee member acting as a speaker/panelist coordinator.

Advertising

A lot of attention was given to program advertising and two committee members were responsible for this effort. Announcements were sent to the local section newsletter, Spectrum, University of Minnesota student paper, local company newsletters (3M, Honeywell Inc., and Zycad), Women in Computing newsletter, Women in Engineering newsletter, SigArt newsletter, Minnesota Technology, IT Connection and individual mailing names. Most of these ads were free of charge and the largest expense was associated with the direct mailing.

Finances

To secure the necessary financial support, help was requested and obtained from the IEEE Region 4 Local Section, Computer Society, ELECTRO surplus fund, ACM, SigArt, Honeywell Inc., and 3M Company. The decision was made to only provide for pre-session registration,

with payment for sessions in advance. A discount was offered to IEEE or ACM members, students, and panelists (attending other sessions). A discount was also offered to persons registering for all of the sessions some time in advance of the first session. All planning committee members were expected to pay for the sessions they attended; the only free attendance was by the speakers and panelists of the sessions in which they were serving. The policy of advanced registration and payment was relaxed somewhat, in allowing walk-in registration only to the limit of the already paid registrants which did not show up.

Invited speakers were paid a modest honorarium and their travel expenses covered. Panelists volunteered their time and effort.

Session evaluation forms were passed out and collected, and the general response was quite favorable, to the extend that the committee is exploring the possibility of organizing another program in the near future.



OEM Sales & Engineering

- Magnetic Starters
- Pilot Devices
- Control Relays
- Terminal Blocks
- Circuit Breakers
- Specialty Transformers

Contact Tony Thomas
(303) 753-2289
FAX 753-2224

A New Force in Denver

Risk Management

- Project Risk Assessment
- Life Cycle Management
- Customized Training
- Proposal Support

Risk Management Support Software

Engineering Management Services
4650 Shawnee Pl
Boulder CO 80303
(303) 494-8009

Overlook Advertising

Ad Size

Rate

	One Time	Multiple
Business Card	\$ 25.00/mo.	\$ 20.00/mo.
1/8 page	\$ 60.00/mo.	\$ 50.00/mo.
1/4 page	\$ 150.00/mo.	\$ 130.00/mo.
1/2 page	\$ 250.00/mo.	\$ 225.00/mo.
Full Page	\$ 400.00/mo.	\$ 360.00/mo.
Insert 8-1/2 x 11	\$ 200.00/mo.	

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

November 1991 Newsletter - October 4, 1991

(There will be no December 1991 issue)
January 1992 Newsletter - December 2, 1991
February 1992 Newsletter - January 3, 1992

March 1992 Newsletter - February 3, 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.

<p style="text-align: center;">Rapley Engineering Services, Inc Engineering Design</p> <p style="text-align: right;">(303) 792-2211</p> <p>Electrical Engineering and Design Process Control Design Instrumentation - Automation Plant Control System Upgrade/Retrofit Computer Applications/Software Develop. Commissioning/Calibration/Start-up CAD/Design/Drafting</p>	<p>Project Economic Analysis Reliability/Availability Engineering Economics Quality Assurance</p> <p style="text-align: center;">Ray M. Wainwright, P.E. <i>Engineering Consultant</i></p> <p>3715 South Niagara Way (303) 758-2985 Denver, Colorado 80237</p>	
<p style="text-align: center;">Serving Colorado and The World — Since 1885 —</p> <ul style="list-style-type: none"> • Power • Mining & Metals • Petroleum & Petrochemicals • Electronics • Aerospace & Defense • Biotechnology • Pharmaceuticals • Hazardous Waste Management <p style="text-align: right;">United Engineers & Constructors <small>A Raytheon Company</small> Western Operations</p> <p>P.O. Box 5888 Denver, CO 80217 (303) 843-2000</p>	<p style="text-align: center;"></p> <p style="text-align: center;"><i>Computer Systems Signal Processing</i> <i>Firmware Hardware</i></p> <p style="text-align: center;">Chief Scientist MICHAEL ANDREWS, Ph.D. FAX # (303) 223-1267 (303) 223-8166</p> <p style="text-align: center;">125 CRESTRIDGE DRIVE FORT COLLINS, CO 80525</p>	<p>DENNIS A. EDWARDSON Director, T&D Services</p> <p style="text-align: center;">Black & Veatch Engineers-Architects</p> <p>1400 South Potomac Street, Suite 200 Aurora, Colorado 80012 (303) 671-4200</p>

The Institute of Electrical and Electronics Engineers - Denver Section

Executive Board

Chairman
Gary A. Petersen
Public Service of CO
5525 E. 38th Ave.
Denver CO 80207
329-1506

Sr. Vice Chairman
H. Paul Meisel
Hydrologics, Inc.
3101 S. Platte River Dr.
Englewood CO 80110
(303) 761-6960

Vice Chairman
Members Services
Rory Laiho
IBM, Dept. J17102511
P.O. Box 1900
Boulder CO 80301
(303) 924-7534

Vice Chairman
Student Activities
Doyle Ellerbruch
Metro. State College
P.O. Box 173362
Denver CO 80217
(303) 556-4007

Secretary
Tom Gibbs
Fichtner/Lee Wan
2801 Youngfield St.#121
Golden CO 80401
(303) 238-7548

Treasurer
Lew Beck, Jr.
Peterson Company
4949 Colorado Blvd.
Denver CO 80216
(303) 388-6322

Past Chairman - **John R. Reesy, 755-1720**
Professional/Industrial Liason - **Dennis Edwardson**, Black & Veatch Engineers, 671-4245
Student Branch Activities - **Michael Meister**, National Telecommunications and Information Administration, 497-6571

Executive Committee (Includes Executive Board)

Standing Committee Chairmen

Society Chapters - **Ray Jukkola**, EMC Engineers, 988-2951
Educational Activities - **Pankaj K. Sen**, EE & CS Dept., Univ. of CO Denver, 556-2872, 556-2685
Conferences - **John Tary**, Tri-State Generation and Transmission Association, 452-6111
Awards - **Keith Henderson**, Electric Power Testing, 650-2218
Student Fund - **Diana Lindstrom**, 422-9374

Professional Activities - **Darrell Sabatka**, Public Service of CO, 329-1547
Nominations - **John R. Reesy**, 755-1720
Membership - **Don E. Lindahl**, Siemens Energy & Automation, 770-7907
Pre-College Student Activities - **Dan Michaels**, Ball Aerospace, 939-5139
Region 5 Director - **John E. Martin**, 233-0023

Executive Committee (Ex-Officio Members)

Subsection Chairmen

Black Hills - **R.D. McNeil**, 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
Joint Antenna and Propagation/Microwave Theory & Techniques/Geoscience and Remote Sensing - **Ron Vidano**, Ball Aerospace, 460-2001
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
Laser & Electro Optics - **Arun K. Majumdar**, Univ. of CO Denver, 556-2715
Magentics - **Dr. Subrata Dey**, Storage Tek, 673-6494
Power Electronics - **Clyde Manning**, Intellistor, 682-6492
Power Engineering - **Kenneth McBryde**, CO Ute Electric Assoc., 249-4501
Reliability - **Rick Karcich**, StorageTek, 673-6223

Senior Past Chairman **Keith Henderson**, Electric Power Testing, 650-2218

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

Publication Coordinator - **Anita Wanberg**, AMW, 220-8042
P.O. Box 4056, Englewood, CO, 80155-4056

The Institute of Electrical and Electronics Engineers



Denver Section
P.O. Box 4056
Englewood CO 80155-4056
Phone: 220-8042

Non Profit Org.
U.S. Postage
PAID
Denver CO
Permit No. 1993

The Month at a Glance

October 7-11, 1991
Antenna Measurement Conference

October 9, 1991
VTS/COMSOC Meeting
CS/ITS Meeting

October 10-11, 1991
IEEE Careers Conference

October 15, 1991
EMC Meeting

October 16, 1991
IEEE Denver Section Meeting
EMBS Meeting

October 17, 1991
MTT/AP/GRS Meeting
PES/IAS Meeting

October 18, 1991
FRQSWC Meeting

08/27/91 DNVR
DAVID B RICHMOND
2921 SO SIDNEY COURT
DENVER
CO 80231

RockIEEE Overlook
Official Publication of the
IEEE Denver Section