IEEE Denver Section

Mile High Spark

Volume 2, Issue 2

APRIL 2011

Inside this issue:

Special points of interest:

Spring Event, April 8, 2011

Discounts! http:/www.ieee.org/go/discounts

Official newsletter of IEEE-Denver Section Published Quarterly

Editor: Sharon Vaninger
Submit articles for consideration to: svaninger@ieee.org

From the Treasurer

"Please grant me the serenity To Accept the things I cannot change; Courage to change the things I can; Wisdom to know the difference."

As the newly installed Denver Section Treasurer for 2011, I happily accept this opportunity to introduce myself to our many, active IEEE members with an introduction in the form of an hypothesis:

The popular sentiment quoted above requires commitment, not serenity.

As I execute the duties of my profession, the many activities sponsored by the IEEE both national and local provided motivation to volunteer my support for the IEEE Denver Section. Considering the many details of this job, as well as the news from around the globe, I sense that it will be commitment rather than serenity that moves people and organizations and situations to a better place.

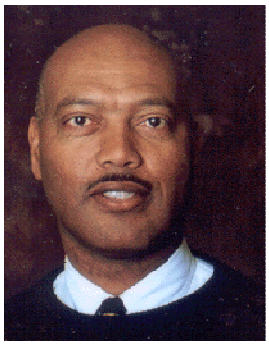
I don't expect or pursue perfection. I am a firm believer in the Six Sigma concept of continuous, incremental improvement. Working as your Section Treasurer, I shall maintain the effective processes established by previous professionals in this position, and I shall try to create new sources of financial strength to support the excellent work done by our colleagues here in Colorado.

In closing, I offer my re-write of the opening quote:

Please grant me the commitment to Understand things as they currently exist; Courage to improve the things I can; Wisdom to ask for help.

May we all have a safe and prosperous and effective 2011.

Cliff Alston
2011 Denver
Section Treasurer



Cliff Alston
c.j.alston@ieee.org

Denver eMail Alias List

chair@ieee-denver.org
vice-chair@ieee-denver.org
secretary@ieee-denver.org
treasurer@ieee-denver.org
society-chapters@ieee-denver.org
contact@ieee-denver.org
webmaster@ieee-denver.org
excom@ieee-denver.org
conferences@ieee-denver.org
chapter-chairs@ieee-denver.org
consultants@ieee-denver.org
Comsoc@ieee-denver.org
Cis@ieee-denver.org
Apmg@ieee-denver.org
comps@ieee-denver.org
Eds@ieee-denver.org
Elecd@ieee-denver.org
Embs@ieee-denver.org
Emc@ieee-denver.org
Leos@ieee-denver.org
Mag@ieee-denver.org
Pels@ieee-denver.org
Pow@ieee-denver.org
Prods@ieee-denver.org
Rel@ieee-denver.org
RA23@ieee-denver.org
Sigp@ieee-denver.org
Ssps@ieee-denver.org
SSC37@ieee-denver.org
stem@ieee-denver.org
gold@ieee-denver.org

Officer Orientation Builds Chapter Management Skills

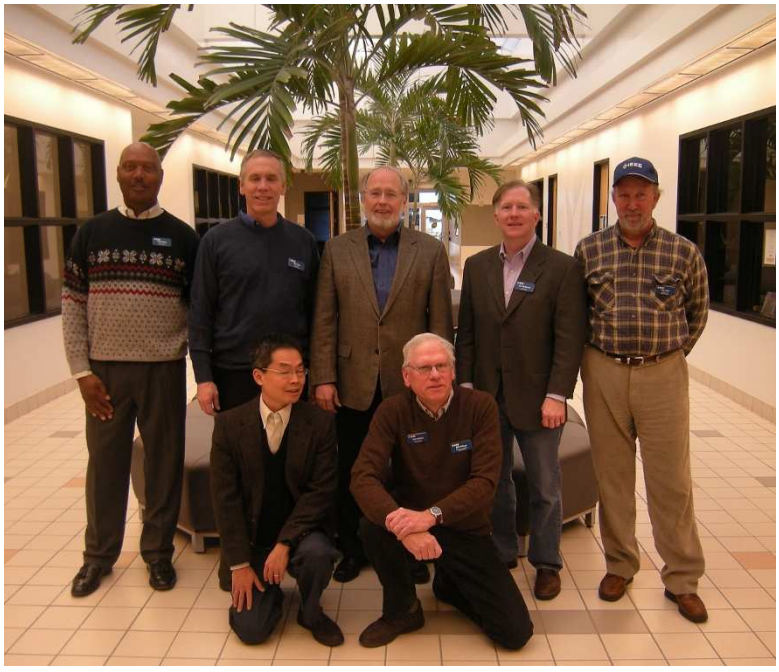
Being a volunteer leader is challenging as well as rewarding. To help you get the job done, the Denver Section Leadership Training on January 22 provided a comprehensive overview of chapter management.

The half-day program offered tools, ideas and the experiences of veteran members to help chapter and affiliate leadership run a successful program. The different session topics covered planning, publicizing and conducting successful technical meetings essential for new chapter officers. Our membership was also lucky to have IEEE President Gordon Day on hand for an opening talk on a vision of IEEE Benefits and Opportunities in the coming year.

Leadership Training—*New IEEE officers and volunteers learn from those with more experience. (Photo by Tim Weil, 2011)*

Workshop Topics

- Officer Roles & Responsibilities
- Student Branches, GOLD, and Pre-College Activities
- Financial Reporting
- Running an Effective Chapter
- Electronic Publicity
- Meeting Logistics & Successful Events
- Region 5 & Denver Section Overview



Denver Section Officers with IEEE President Gordon Day
Back Row: Cliff Alston, Bob Faus, Gordon Day, Rick Robinson, Tim Weil; Front Row: Louis Tsai, Bob Wilson

Tools for membership development such as SAMIEEE, e-Notice and Constant Contact were explained. Other topics included ideas for meetings and activities as well as sources of funds. Participants had the opportunity to share ideas with other chapter officers, and to meet section and region leaders. Over 50 chapter, affinity group and student branch officers attended the training program sponsored by the Denver Section.

The workshop was held at the DeVry University in Westminster and concluded in the early afternoon.

- Tim Weil
Denver Section Secretary

Denver PACE to hold Career Workshop

PACE (Professional Activities Committees for Engineers) is a grassroots network of IEEE volunteers and committees organized at the section and chapter level in the United States with support from their respective regions and IEEE-USA. The goal of the PACE Network is to promote the professional interests of IEEE's U.S. members as well as provide a mechanism for communication of members' views on their professional needs.

We are excited to announce a career workshop to be held on Saturday, May 14, 2011 at DeVry University (Westminster campus Room 121) from 8:30 am to 12:00 pm.

Networking and breakfast starts at 8:00am. This workshop is brought to you by IEEE employment and career services (ECS) and Denver section. The workshop covers career advancement for engineer professionals. Whether you are new, mid career or long time veteran, the workshop will equip you with information you need to advance your career. Enrollment for the workshop will be opened in late March. Please check the IEEE Denver Section's Google calendar for details. Hope to see you there.

Mines' IEEE Student Branch organizes Dinner with Industry

The IEEE Student Branch of Colorado School of Mines organized its annual event Dinner with Industry on Tuesday, February 8, 2011, which coincides with the Spring Career Day at Mines. On one of the coldest and most snowy days of the season, 23 members of the IEEE Student Branch got together with representatives from companies interested in recruiting students majoring in EE. The event hosted 7 recruiters from ArcelorMittal, Burns & McDonnell, Covidien, Eaton Corporation and the Graduate Office at Colorado School of Mines. The support of the faculty of the Division of Engineering at the school was manifested through the attendance of Dr. P. K. Sen, advisor of the IEEE Student Branch, and Dr. Kevin Moore, Interim Director of the Division of Engineering.

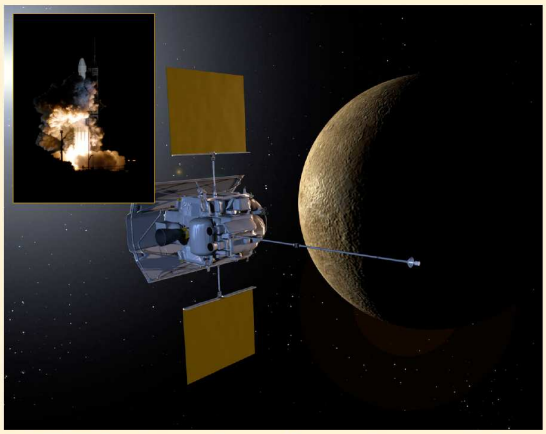
The event started by introducing the officers of CSM IEEE Student Branch, as well as the representatives of each company. A networking hour followed, and then dinner was served. Very positive feedback was received from recruiters and students alike about the value of the event in creating a professional networking environment where collaboration opportunities are born, and interesting debates arise. From the fun of soldering projects to the future of renewable energies, attendees had fruitful discussions, some of which lasted more than 30 minutes after the official end of the event. Following the event, several students got interviews and job offers.

Dinner with Industry is an annual tradition that the IEEE Student Branch at Colorado School of Mines plans to sustain and to improve using the feedback received from attendees.

- Fatima Azzahra El Azzouzi
Colorado School of Mines

Spring Event

Exploring Mercury's Atmosphere and Surface

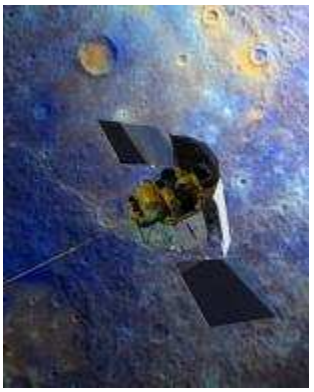


The MESSENGER (MErcury Surface, Space Environment, GEochemistry and Ranging) spacecraft, NASA's first orbiting mission to the planet Mercury, was launched on August 3, 2004 from Cape Canaveral Air Force Station. After arriving at Mercury in March 2011, the scientific instruments aboard MESSENGER will image the entire planet, study the composition of the surface materials, investigate the nature its tenuous atmosphere (called an exosphere), and measure its magnetic field.

NETWORKING AND LASP'S MERCURY EXPERIENCE

Date: Friday, April 8th
Place: LASP (Laboratory for Atmospheric and Space Physics)
1234 Innovation Drive, Boulder CO 80303
Time: 6:00 pm - Hors D'oeuvres and Networking
7:00 pm - Speaker Greg Holsclaw
8:00 pm - Optional Mercury Messenger tour

About: Enjoy yourselves at this year's IEEE networking experience! Mingle with other IEEE members in academia, industry, and research while enjoying after-dinner snacks and drinks (alcoholic limit 2). Listen to our special guest, Greg Holsclaw, who will highlight the work done and the recent observations of one of LASP's projects: the Mercury Messenger. Messenger was launched in 2004 and is the first spacecraft to visit the surface of Mercury in over 30 years. Complete the evening with a tour of the LASP facilities that includes aerospace rockets, satellite models, and other operations equipment.



Cost: $15 Members, $20 Non-Members, $10 Family Members (including children)

- Krista Hasling

Combined Meeting of EMBS and Robotics & Automation Societies

Dr. Kurt Smith

Tuesday, April 26, 6:30PM in the Discovery Learning Center at CU Boulder
Free and Open to the Public
Pizza and Beverage

Map: http://www.colorado.edu/campusmap/map.html?bldg=DLC

Dr. Kurt Smith, a successful six-time entrepreneur, will present to the Denver IEEE and guests on April 26 in Boulder at the Discovery Learning Center on the CU Campus. Dr. Smith will describe his background as a successful entrepreneur, focusing on creation of a medical navigation company, and share thoughts and visions on how robotics will play a role in medical devices. He will also emphasize the role that precision and navigation will play in future medical procedures and therapies.

This is a joint presentation by the Robotics & Automation and the Engineering in Medicine & Biology Societies of the IEEE.

- Jim Harrer

Biography

Kurt is a scientist and an entrepreneur. He is the holder of various medical and information technology patents, and is the Founder of numerous high-technology companies including Surgical Navigation Technologies (SNT), now Medtronic Navigation. Kurt has served in professorship positions at Southern Illinois University, St. Louis University and Johns Hopkins University. As faculty in the College of Engineering and Applied Science and in partnership with the Deming Center for Entrepreneurship, he is the lead developer of the Engineering Entrepreneurship program. Currently, Kurt serves as the Vice President, New Growth Platforms & Upstream Marketing, for Covidien Energy-based Devices.

IEEE-USA Annual Meeting

Going to a IEEE conference to meet section representatives from six regions was a great experience. The conference was held in Austin, Texas on March 3-6. This year's theme was "Engineering in Motion". There were speakers from Austin Energy, Boeing, GM, Nissan and University of Texas at Austin. Besides, it had demonstrations from Chevy Volt, Nissan Leaf and Electric Bike from KLD. There was also a short tour to visit IBM Green Laboratory at Austin. Obviously, I learned a lot about renewable energy. On the light side, we had the chance to socialize with representatives from the rest of the countries. So many good ideas exchanges and opportunities to understand successful PACE events held in other sections.

Jim Jeffries *(Denver Section Past Chair, VP Government Relations IEEE-USA)***, Louis Tsai** *(Denver Section Vice Chair)***, Jennifer Kramer** *(Denver Section Student Branch Activities)***, and Jim Look** *(Region 5 West Area Chair and IEEE-USA VP Professional Activities)*

One main topic of the meeting was how to add value for IEEE members. Some sections teamed up with other local professional societies such as Project Management Institute to organize training sessions. It was also exciting to know that IEEE memberships were up last year. We are now 400,000+ strong worldwide. I want to hear from our Denver section members, what we can do to add value to your membership. Please send your ideas to me at Louis.tsai@ieee.org. We can make a difference in the Denver engineering community.

- Louis Tsai

IBM

Chevy Volt

Nissan Leaf

Annual Meeting Demonstrations and Tours

A Mentoring Story

A bright high school student is working on his Senior Project, building a preamplifier to be used with his own electric guitar. Because Brandon Boyle is new to the entire field of electronics, he has asked me to be his Mentor at the DSST: Denver School of Science & Technology. http://dsstpublicschools.org/

In this photograph (lobby of DSST, Friday afternoon, March 11, 2011), I had brought my own electronic test equipment: audio signal generator, frequency counter, oscilloscope (dual-trace display), digital capacitance tester, and digital multimeter. Brandon brought his mostly-finished preamplifier, so that we could test it and find out what might be causing audible distortion.

We injected an audio sine-wave into the guitar input, and traced the signal through the three-stage preamplifier. The first amplifier stage displayed an inverted signal which was larger than the input, as expected for a gain stage. By the second stage, severe distortion was visible on the oscilloscope screen. During our limited two hours, I noted some improvements that Brandon can make to get his preamplifier working correctly.

Each Friday afternoon, we continue to meet, and to learn more about electronics. Of unusual interest, is that Brandon copied the circuit diagram (and parts list) from the internet. The design called for use of Vacuum Tubes (very retro?). Because vacuum tubes are not as popular as they had been more than sixty years ago, the ones that are still available are no longer cheap. The output pentode, 6BQ5, cost Brandon more than thirty dollars, and the input dual triode, 12AX7, was also steeply priced. Other parts, such as high-voltage transformers with filament windings (typically 6.3 VAC / 12.6 VAC) are no longer found at common electronics stores like Radio Shack.

Nowadays, semiconductors seem to be everywhere, are typically cheaper, and are much more efficient than vacuum tubes, at least for applications like low-level audio amplifiers. However, learning electronics does not require using the latest transistors or integrated circuits.

An ancient question, that educators have often asked themselves, is: "Should Ontogeny recapitulate Phylogeny?"
Should any subject matter be taught in the same order as when it was discovered / developed? Knowledge of any technical field will be broadened, if the early discoveries and inventions are included.

- Richard C. Rew

Colorado Governmental Affairs

Colorado Association of Commerce & Industry

On January 20th, the Colorado Association of Commerce & Industry (CACI) sponsored a luncheon event with Governor John Hickenlooper as the key note speaker. The governor's hour long presentation centered around the theme of engendering a strong pro-business environment in Colorado and up-coming meetings with the General Assembly on tackling the FY2011-FY2012 budget.

To promote his agenda, he is seeking to lighten the regulatory burden on businesses in the idea that they can create jobs and prosper while still protecting land, water and public safety. The "economic health" of the state depends on "business success," he said. Furthermore, the Governor said that state government must become "more efficient" and businesses also have to be "held to the highest standards" in terms of their operations.[1] More on his Bottom-Up Economic Development Plan can be viewed at: http://www.colorado.gov/cs/Satellite/OEDIT/OEDIT/1251588165225.

The Governor also said that he learned from his travels around Colorado during the gubernatorial campaign and during a four-day trip the weekend immediately after he was inaugurated that the citizens have no appetite for increasing taxes and fees. Consequently, he and the General Assembly will "have to make some very difficult decisions" to balance the state budget for the fiscal year beginning July1st that has a projected $1 billion shortfall.[2]

In attendance from IEEE were: Cliff Alston, Jennifer Kramer, Dan Lubar, Matt Oetting, and Abhi Sur.

Governor's revised FY2010-11 and FY2011-12 budget

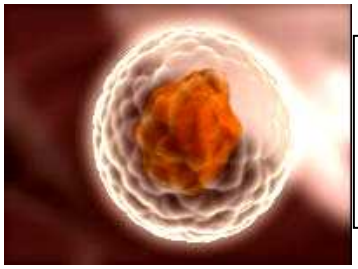
On February 15th, Gov. John Hickenlooper delivered budget changes for FY2010-2011 and FY2011-2012 to the Joint Budget Committee. The budget package is based on the most conservative economic forecast and reduces expenses across state government, including reductions to K-12 education, higher education, Medicaid and human services. The budget changes also include closing a state prison, repurposing four state parks, reducing local grants and restoring a 4 percent budget reserve – which is approximately 14 days of operating funds for the state.[3] More information can be found at: http://www.colorado.gov/cs/Satellite/GovHickenlooper/CBON/1249674240382

[1] The Colorado Capital Report, CACI, Friday, January 21, 2011
[2] The Colorado Capital Report, CACI, Friday, January 21, 2011
[3] Press Releases, Colorado, The Official State Web Portal, Tuesday, February 15, 2011

- Matt Oetting

Discover the EMB Society: Adding More Value to your IEEE Membership

The local Engineering in Medicine and Biology is one of 17 Denver Section Technical Societies and has been active in the Denver area for several years. We have sponsored a variety of presentations regarding biomedical engineering topics, including Biomagnetics, Spectroscopy for Cancer Detection, Hearing Aid DSP Technology, advanced MRI techniques, and a workshop on LabVIEW with the Metro Student IEEE. In addition, our Society participates in community events, such as FIRST Robotics, and STEMapalooza.



Iron oxide nanoparticle used for MRI contrast and viral surrogate - S. Russek, 2009

LabVIEW Workshop, 2010

Senior and Future IEEE Members discuss motor circuit at STEMapalooza.

Metro IEEE Student Member Patrick Kuretich raising Sparks.

Getting to know your local IEEE Society of interest is a great way to increase the value of your IEEE Membership, without paying more fees. You can meet new friends, see what is happening in the engineering companies where you live, and get some inside tips on how to break into a new field. Biomedical Engineering is a revolutionary field, experiencing exponential growth. Check out the opportunities and look for EMBS, or any one of 16 other societies of interest to you, on the Denver IEEE site at http://www.ieee-denver.org > technical societies.

Even if you are not now an IEEE or EMBS member, join us at our next event on April 26 at CU Boulder. Meet our Chair, Dr. Dana Landry, presenter Dr. Kurt Smith, and many other members and guests. As a 100% volunteer organization, we are always looking for more people willing to help out in a variety of ways, so contact EMB Secretary Jim Harrer to find out how to get involved. - Colorado EMBS Secretary: jharrer@ieee.org

http://embs.ieee-denver.org/ http://www.embs.org/

EMBS Chair, Dr. Dana Landry
Director R&D | **Covidien-Energy-based Devices-Interventional Oncology**

Dana J. Landry has over 30 years experience in medical device design and manufacturing. His career started with the U.S.F.D.A in 1977 and moved to industry in 1980. He has held positions in manufacturing, quality and for the last 16 years in research and product development. This unique career path from the consumer through manufacturing to product development has given him a broad insight into the problems and working solutions for profitable development activity. He holds a B.S. (Biology), M.S. (Biomedical Engineering), M.B.A. (Operations focus) and a PhD in Organization and Management with a specialty in Leadership studies. In addition he has held CQE and CRE designations. Dr. Landry has served on the Advisory Board of La. Tech University Biomedical Engineering Department and served on the editorial review board for Quality Progress. He is currently head of the R&D group at Covidien in Boulder focused on developing RF and MW energy devices used to ablate tumors.

His outside research interests include teams, global multi site product development and leadership development in early career stage professionals. He lives in Boulder with his wife Pam. When not working or visiting his grandchildren in Firestone he spends time fly fishing and backpacking.

"I encourage all members of EMB to contact me via e-mail and let me know the kind of meetings and activities in which you are most interested."

- Colorado EMBS Chair: dana.landry@covidien.com

Chapters and Affinity Groups

CHAPTERS

Magnetics Society John Moreland
http://www.ieee-denver.com/localsocieties.html?site_id=323&page_id=3757&id_sub=3757

Photonics Society Diego Krapf (CSU)
http://ewh.ieee.org/r5/denver/leos/

Engineering in Medicine and Biology Dana Landry
http://embs.ieee-denver.org/

Electromagnetics Compatibility Society Chuck Still
http://www.ewh.ieee.org/r5/denver/rockymountainemc/

Power Engineering Society / Industrial Applications Society Edwin Johnson
http://www.ieee-denver.org/?site_id=323&page_id=3080&id_sub=3080

Power Electronics Society Tom Osborne
http://www.denverpels.org/

Computer Intelligence Society Ernest Balenzuela
http://cis.ieee-denver.org/

Robotics Society Sam Siewert
http://ras-denver.blogspot.com/

Communications Society Jill Arnson
http://comsoc.ieee-denver.org/

Antennas and Propagation / Microwave Theory and Techniques Dr. Michael Janezic
https://secure.goozmo.com/?site_id=438&id_sub=5603&page_id=5603&pagenum=1

Computer Society Adam Griff
http://ewh.ieee.org/r5/denver/computer/index.php

Geoscience and Remote Sensing Bill Emery
https://secure.goozmo.com/?site_id=438&id_sub=5603&page_id=5603&pagenum=1

Reliability Society
http://rel.ieee-denver.org/

Signal Processing Society Marc Kessler
http://ewh.ieee.org/r5/denver/sps/index.php

Solid-State Circuits Society Bruce Doyle
http://ewh.ieee.org/r5/denver/sscs/

AFFINITY GROUPS

Consultant's Network
http://www.ieee-denver.com/?site_id=323&page_id=3761&id_sub=3761

IEEE Denver Section

Mission Statement
Enrich the professional and personal lives of the Rocky Mountain Region members, developing them into valued contributors to society through quality programs, continuing education, career development and community service; in collaboration with IEEE, industry, government and academia.

The IEEE Denver Section is comprised of over 3600 engineers and technical professionals in the Denver - Boulder area.

http://www.ieee-denver.com/