



CECS Newsletter – July 2014

News

As part of the U.S. Department of Energy's Sunshot Initiative to drive the cost of solar-based power generation to a leveled cost of 6¢/kWh, the Colorado School of Mines (CSM) in partnership with Abengoa Solar in Lakewood, CO and the National Renewable Energy Laboratories (NREL) received a two-year award for a \$1.3M program to develop a new method for storing solar energy. The project, which is part of DOE's CSP – ELEMENTS program, will be led by CSM Professor **Greg Jackson, (ME)**, and explore the use of highly reducible oxides (perovskites from earth abundant elements) to store concentrated solar energy both in heat and chemical bonds. The technology has the potential to allow concentrated solar power plants to utilize stored energy for continued plant operation through the night or other periods of low solar insolation. Prof. Jackson is joined Profs. **Robert Braun (ME)** and **Robert Kee (ME)** and Prof. Ryan O'Hayre (MME) to work on both materials development and system design of the novel energy storage concept.

Asst. Professors **Steven DeCaluwe (ME)** and **Aaron Stebner (ME)**, were chose to give invited lectures at the American Conference on Neutron Scattering, which took place June 1 - 5 in Tennessee near Oak Ridge National Lab. **Dr. DeCaluwe** spoke on his work related to fuel cells with a talk entitled "Neutron reflectometry fitting techniques for under-determined, multi-layered structures: Lamellar phase segregation in ultra-thin Nafion films." **Dr. Stebner** talk discussed his groundbreaking work on shape-memory alloys with a presentation entitled "In-situ neutron diffraction for advancing constitutive models of shape memory alloys." It was an honor to have two faculty from our College present at the premier meeting in the field Neutron Scattering.

Prof. Atef Elsherbeni and **Dr. Payam Nayeri** of the EECS department recently published a book entitled "[*Antenna Analysis and Design Using FEKO Electromagnetic Simulation Software*](#)"

The book is to introduce students and interested researchers to antenna design and analysis using the popular commercial electromagnetic software FEKO. This book is primarily intended for students working in the field of antenna analysis and design; however the wealth of hands-on design examples presented in this book—along with simulation details—also makes it a valuable reference for practicing engineers.

Assistant Professor **Judith Wang (CEE)** and Associate Professor **Junko Munakata Marr (CEE)** were awarded a \$269,430 three year grant from the National Science Foundation's GGS program to study the efficacy and sustainability of bio-mediation of soils for liquefaction mitigation. This project is being performed in collaboration with Assistant Professor Susan Wang at Washington State University and Associate Professor Carol Boyle at the University of Auckland. Judith Wang has additionally been appointed an associate editor for the ASCE Journal of Performance of Constructed Facilities.

Brian Zaharatos (AMS) PhD student of **Luis Tenoris (AMS)** presented some of his PhD work at the IEEE Photovoltaics Specialist Conference in Denver. Brian, along with three other Colorado School of Mines students (from other departments), won a best student paper award. There was one award from each of 12 technical areas, and a lot of really great work in each area. Mark Campanelli (NREL) and Brian also received some recognition for their work in the daily summary (<http://www.ieee-pvsc.org/PVSC40/WEDNESDAY.pdf>) and during a presentation at the closing ceremony.

Jenifer Blacklock (ME) and grad student **Andrew Neill** appeared live on a Fox 31 news segment to discuss activities related to Robotics and Advanced Manufacturing. They had a 5 minute segment and showed the NaoRobot doing a dance and discussed the activities related to additive manufacturing and robotics in the **Mechanical Engineering** Department. Follow the link below to watch the segment.

<http://minesnewsroom.com/mines-in-the-news/mines-professor-graduate-student-featured-everyday-show-kdvr>

The Colorado School of Mines [Center for Space Resources](#) is partnering with the Institute for Modeling Plasma, Atmospheres, and Cosmic Dust (IMPACT) led by the Laboratory for Atmospheric and Space Physics at the University of Colorado-Boulder, which has been awarded a five-year, \$6 million NASA grant. The Mines research effort led by professors Angel Abbud-Madrid, **Christopher Dreyer (ME)** and **George Gilmer (ME)**, will guide the design and operation of mechanical systems interacting with regolith (a layer of unconsolidated rock, soil and dust on top of solid rock). See the entire story at the link below.

<http://minesnewsroom.com/press-releases/mines-center-space-resources-selected-participate-nasa%E2%80%99s-solar-system-exploration>

Fiscal Items

REMINDER As previously announced, these changes went into effect on 7/1/14:

- Effective July 1, there will be a change in accounting for non-employee travel. All non-employee travel will be recorded in one account code, 5504. The other non-employee travel account codes, 5506, 5510, 5512 will be inactivated.
- Effective July 1, P-card charges that are not properly allocated within the 10 day grace period will now be recorded in a new P-Card Clearing account code within Banner. All P-card users will be required to use this new default code. P-card holders will also be required to ensure that all charges hitting the P-card clearing account are moved to the appropriate account code representing the activity of their purchases. The Controller's Office will monitor the clearing account each month and send reminder emails to the p-card holder and approver if charges are not moved from the clearing account on a timely basis.