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ESA Newsletter

Electrostatics Society of America - The Friendly Society

President's Message

Dear Colleagues,

I got an unexpected benefit from my ESA membership a couple of weeks ago … in Myanmar!

To begin, here's some background on Myanmar (also known as Burma). Myanmar has had a repressive military government since the early 1960s. In the 1980's there were large student protests against the government, and the government responded by killing thousands of the protesters. The US curtailed relations with Myanmar and imposed sanctions in about 1990; for example, the US had not had an ambassador to Myanmar since that time.

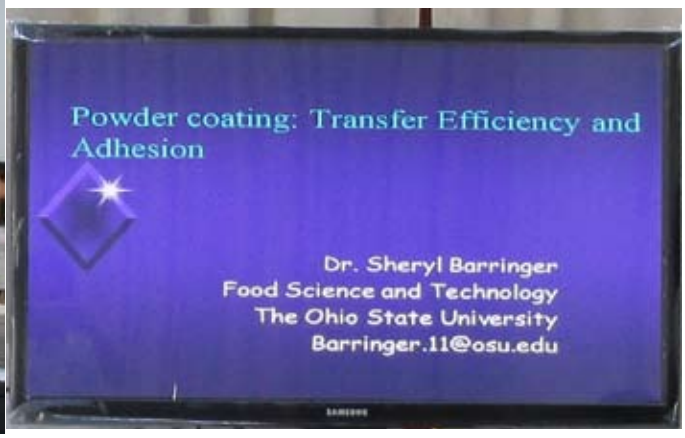
In the late 1990's, further student protests led the government to close the undergraduate programs at their major universities (leaving only smaller regional schools open). The government also imposed strict censorship, such as no access to the internet.

But things started to change for the better last year. Free and peaceful elections were held, and the opposition party won 43 of 45 open seats. Internet access is now allowed. In response to these changes, the US is normalizing relations with Myanmar -- an ambassador to Myanmar was appointed last year, most sanctions have been lifted, and President Obama visited the country this past November.

And this year the undergraduate programs at the major universities have reopened. This is a slow process, where they have first-year students this year, will have first- and second-year students next year, and so on.

I was just in Myanmar for two weeks on a Fulbright grant, to assist the Yangon Technological University (YTU) as they restart their undergraduate program. My objectives were to consult with YTU in regard to curriculum development and accreditation, and to provide workshops in modern engineering to YTU faculty and graduate students.

During one of my workshops, a YTU professor asked if I could present a lecture related to food technology. I hesitated with my response -- I really don't know anything about food technology. But that didn't stop me from telling him yes. Thanks to my involvement in the ESA, I had a plan…



(cont'd. on p. 2)

President's Message (cont'd.)

ESA member Sheryl Barringer is a professor in the Food Science and Technology Department at Ohio State. I've always enjoyed Sheryl's presentations at the ESA meetings. So I emailed Sheryl and asked if I could present her research to the group at YTU. A little over an hour later I had a presentation on research addressing how electrostatics can be used to more effectively deposit seasonings on potato chips!

I gave the talk the next day, and it went great! It went as smoothly as a presentation on my own work. The slides Sheryl put together were very clear and well organized, with nice ties between applications, engineering fundamentals, and experiments. While I've enjoyed Sheryl's presentations when watching them, I enjoyed it even more when I gave the presentation!

I keep finding new benefits from my involvement in the ESA!

Regards,
Dan Lacks,
President, ESA
daniel.lacks@case.edu

Calendar

- EOS/ESD 35th Annual Symposium, Sept. 8-13, 2013, Las Vegas, Nevada, USA, Lisa Pimpinella, *info@esda.org,* http://www.esda.org/
- 13th Int'l Conf on Electrostatic Precipitation (XIII ICESP), Sept. 16-21, 2013, Bangalore, India, S. Seetharamu, *icesp2013@gmail.com,* http://icesp2013.in
- IEEE-IAS Annual Mtg., Oct. 6-11, 2013, Orlando, Florida, Lucian Dascalescu, *lucian.dascalescu@univ-poitiers.fr,* http://ewh.ieee.org/soc/ias/2013/
- 2013 IEEE CEIDP, Oct. 20-23, 2013, Shenzhen, P.R. China, *Mahmoud.Abou-Dakka@nrc-cnrc.gc.ca.,* http://www.ewh.ieee.org/soc/dei/ceidp/ceidp2013.htm
- EIC 2014, June 8-11, 2014, Philadelphia, PA, USA, http://sites.ieee.org/eic/ (abstract due Oct. 16, 2013)
- ESA 2014, June 17-19, 2014, Univ. of Notre Dame, South Bend, Indiana, USA, David Go, *dgo@nd.edu*
- SFE 2014 (9th Conf.) Aug. 27-29, 2014, Toulouse, France, *secretariat-sfe2014@laplace.univ-tlse.fr* (abstract due Jan. 31, 2014)
- ESA 2015, June, 2015, Cal Poly Pomona, Pomona, CA, USA, Keith Forward, *kmforward@csupomona.edu*

ESA Officers

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Dan Lacks, Case Western Reserve Univ.
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Shesha Jayaram, Univ. of Waterloo
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Sheryl Barringer, Ohio State Univ.
Kelly Robinson, Electrostatic Answers, LLC
Rajeswari Sundararajan, Purdue Univ.

Current Events

Researchers discover a naturally occurring topological insulator
Michael Berger

Strange new materials experimentally identified just a few years ago are now driving research in condensed-matter physics around the world. First theorized and then discovered by researchers at the Berkeley Lab and their colleagues in other institutions, these "strong 3-D topological insulators" — TIs for short – are seemingly mundane semiconductors with startling properties. For starters, picture a good insulator on the inside that's a good conductor on its surface – something like a copper-coated bowling ball. Topological insulators offer unique opportunities to control electric currents and magnetism, and are promising materials for future spintronic applications or could provide access to novel, fascinating physical phenomena such as Majorana fermions ("Unconventional Superconductivity on a Topological Insulator") or magnetic monopoles ("Inducing a Magnetic Monopole with Topological Surface States"). This is due to their intriguing charge transport channels on their surface, in which the electron spin is coupled to its momentum.

While so far, only synthetic TIs had been experimentally identified, in the February 26, 2013 online edition of Nano Letters ("A Natural Topological Insulator"), researchers in Germany report the discovery of a natural occurring topological insulator: the mineral Kawazulite. When exploring Kawazulite, found in a Czech gold mine and processed into nano-flakes, the team found that it is a natural topological insulator.

(excerpted from http://www.nanowerk.com/spotlight/spotid=29438.php)

2014 Annual Meeting of the Electrostatics Society of America

University of Notre Dame
Notre Dame, IN
June 17-19, 2014

The University of Notre Dame is proud to host the 2014 Annual Meeting of the Electrostatics Society of America (ESA), bringing together experts across a wide range of fields to present new developments in electrostatics.

Anticipated Technical Session Topics

- Contact charging and triboelectric effects
- Gas discharges and microplasmas
- Breakdown phenomena, safety and hazards
- Electrically-induced flows and electrokinetics
- Atmospheric and space applications
- Biological and medical applications
- Materials synthesis, processing, and behavior
- Measurements and instrumentation

Conference information, including abstract submission, registration, and travel/lodging, will be updated and available on www.electrostatics.org.

Conference Chair
Prof. David B. Go (dgo@nd.edu)
University of Notre Dame

About the University of Notre Dame: Picturesque University of Notre Dame is located 90 miles east of Chicago adjacent to the northern Indiana city of South Bend. Ranked 17th by U.S. News and World Report, Notre Dame boasts a population of approximately 8,000 undergraduates and 4,000 graduate students as one of the most well recognized, private higher education institutions in the United States.

ESA 2013 Annual Meeting

The 2013 Annual Meeting of the Electrostatics Society of America was held in Cocoa Beach, FL at the Doubletree by Hilton hotel located right on the Atlantic Ocean. This beautiful venue and its serene beach was a perfect gathering spot for over seventy electrostatics experts and enthusiasts from 10 countries worldwide. In fact, every corner of the globe was represented with participants from as far as Australia, Brazil, and Japan, in addition to Europe and North America. Organized by conference General Chair Dr. Charlie Buhler and Technical Chair Prof. David Go in the backyard of NASA's Kennedy Space Center, highlights included a special session by NASA scientists, a specially organized tour of NASA facilities, and a welcome gathering at Fishlips Bar & Grill, the traditional location for homecoming celebrations for astronauts returning from space missions.

For the technical session, there were 47 talks delivered over 11 sessions. A session focused on biological and medical applications was well received by audience members as a Keynote Address by Prof. Mounir Laroussi from Old Dominion University and an Invited Talk by Prof. WeiDong Zhu from Saint Peter's University introduced attendees to recent advances in using atmospheric pressure plasmas to, among other things, kill bacteria and cells. Prof. Bruce Locke from Florida State University continued on this theme with his Keynote Address on gas discharges interacting with liquids. In addition to talks on materials synthesis and behavior, electrohydrodynamics, gas discharges, breakdown, and measurements, a popular topic this year was triboelectricity and contact charging. Leading three separate sessions devoted to this topic were Keynote Speakers Prof. Tatsushi Matsuyama from Soka University and Prof. Poupak Mehrani from the University of Ottawa and Invited Speakers Dr. Bilge Baytekin and Dr. H. Tarik Baytekin from Northwestern University. A special session with talks by NASA scientists Carlos Calle and Michael Johansen on electrostatics and space missions was also a welcome topic at this year's meeting.

As the "friendly society," the ESA has always encouraged participation by student researchers, providing them with a welcoming venue to present their latest research breakthroughs. This year, nearly 40% of the technical talks were delivered by students and first, second, and third place awards were given out to 18 students by a panel of expert judges. Paul Rumbach from the University of Notre Dame, Souvik Goush from Case Western Receive University, and Thiago Burgo from the University of Campinas and National Nanotechnology Laboratory were all recognized for their outstanding work and presentation skills by first place awards. The top prize was given to Alexander Eifert from the Technical University Darmstadt for his talk "Small Onset Voltages in Corona Discharges at the Edges of Gold and Aluminum Foils." His presentation was widely praised by the judges, and his technical work has also recently been published in Applied Physics Letters (vol. 103, art. no. 023114, 2013).

In addition to the special technical session, the NASA theme permeated a number of social gatherings arranged by Charlie Buhler. On the evening before the conference, many of the participants gathered for an informal reception at Fishlips Waterfront Bar & Grill. Fishlips is a local icon in Cocoa Beach, as many astronauts and their families celebrate their return from space missions on the upper patio of the restaurant. The reception was on a very comfortable evening and enjoyed by all. To close the conference, Charlie arranged for a special tour of the Kennedy Space Station for conference attendees. In addition to seeing the launch pad, the Vehicle Assembly Building, and the Apollo/Saturn V Center, participants were treated to the VIP experience and toured the Swamp Works research facility, including the Electrostatics and Surface Physics Lab. This special tour pulled back the curtain to reveal some of the remarkable innovations currently being developed at NASA, such as the electrostatic dust shield and the rover digger. We would like to give special thanks to Dr. Carlos Calle and his team, who helped arrange and hosted the Swamp Works tour!

An annual high point for the meeting is the banquet and this year was no different, with Dr. Glenn Schmieg again providing the post-dinner entertainment with a wonderful "show and tell" talk about communication and science. Attendees enjoyed word games, new versions of tic-tac-toe, and combustible demonstrations at their tables. Special honors and recognitions were also given at the banquet: Dr. Carlos Calle for Lifetime Achievement, Dr. Ed Law for Honorary Life Member, and Dr. Angela Antoniu for Distinguished Service.

The organizers would like to give a special thanks to Charlie's mom Maureen Kennedy and wife Janessa Buhler, and students from Appalachia State University Josh Kelley and Jay Phillips, who were instrumental in helping organize and run the conference. We'd like to thank our sponsors this year: Trek Inc., Sunless Inc., and NASA.

Next year, Prof. David Go is delighted to welcome the ESA to the University of Notre Dame in South Bend, IN from June 17-19 for the 2014 Annual Meeting of the Electrostatics Society of America. Prof. Go will be serving as General Chair with Prof. Poupak Mehrani from the University of Ottawa will serve as Technical Chair.

David Go, Technical Chair
Charlie Buhler, Conference General Chair

ESA 2013 Annual Meeting - Photo Collage

More pictures may be found at *http://electrostatics.us/esa/2013/page_01.htm* . Thanks to those who took their hand at the camera, especially Al Seaver and Maureen Kennedy (Charlie Buhler's mother). Many thanks to Al Seaver for downloading and archiving the multitude of photos (several hundred!).

Electrostatics
Society of America

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ESA Information

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