



ESA Newsletter

Electrostatics Society of America - The Friendly Society

President's Message

Dear ESA Colleagues,

It was great to see many of you in June at the Joint Electrostatics Conference in Cambridge, Ontario. This was the largest meeting ever hosted by the ESA, with 62 talks, 38 poster presentations and over 130 attendees. We had attendees coming from all parts of the world, with all continents being represented. In addition to the regular technical sessions, the conference included a unique evening session featuring electrostatics demonstrations. I'd like to thank the Conference Chair, Shesha Jayaram, and the Technical Program Chair, Maciej Noras, for doing such a great job with this conference – many people said to me that this was the best ESA-hosted meeting they have attended.

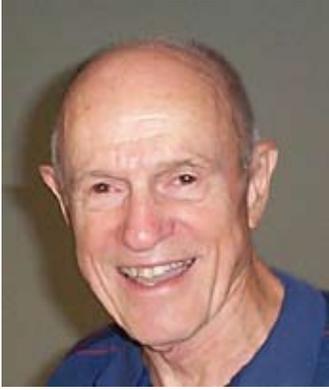
It was a pleasure for me to present the 2012 ESA awards at the meeting. Steve Cooper received the Distinguished Service Award, "in deep appreciation for his financial stewardship of the Electrostatic Society of America". Tom Jones received the Lifetime Achievement Award, "for his innovative use of electrostatics to manipulate particles and droplets". Mark Horenstein received the Honorary Life Member Award, "in deep appreciation of his significant contributions made to both the ESA and to the field of electrostatics". Steve, Tom and Mark are well deserving of these recognitions, and we are fortunate to have them involved in our Society.

Our next meeting will be June 11-13, 2013, in Cocoa Beach, Florida, with Charlie Buhler as the conference chair. The draws for this meeting are a hotel right on the beach (Atlantic Ocean) and a visit to the NASA Kennedy Space Center. And our 2014 meeting will be at the University of Notre Dame (June 17-19, 2014) with David Go as the conference chair. You should take this opportunity to see the beautiful Notre Dame campus.

I'd also like to tell you about something that is making my summer more exciting. I am hosting a Fulbright program for engineering faculty from Iraq. The program, funded by the US Department of State, brings eight Fulbright scholars to Case Western Reserve University for ten weeks. I decided to host this program because I thought it would make my summer more interesting ... and it has turned out to be even more interesting than I imagined! The scholars arrived four weeks ago. I have learned how they have undergone tremendous hardships in the past ten years as they struggled to continue teaching engineering while their country fell into chaos. I've heard stories of their personally being caught up in terrorist attacks and narrowly escaping with their lives. Their daily commutes that should be twenty minutes are now over two hours due to police roadblocks throughout the city. I find it inspiring how, notwithstanding all of these difficulties, these scholars have dedicated themselves to improving their country by teaching others.

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

Tribute to Bill Smart



William L. (Bill) Smart, who served as our ESA Newsletter Editor for 17 years (1985 – 2002) and served as a member on the Executive Council for 12 years (1981 – 1993) passed away on July 15th, 2012 surrounded by his loving family. Bill received the ESA Distinguished Service Award in 1991 and was an admired

member of the electrostatics community for his many contributions to the ESA Membership. His cheerful disposition and friendly smile helped the ESA to achieve the nickname “the Friendly Society.”

Bill had celebrated his milestone 90th birthday in February and had remained in relatively good physical condition until about two weeks before his death. Bill worked for Ransburg Corporation in Indianapolis for approximately 45 years as an employee or consultant in various engineering capacities, where he was directly involved in the design, development, and application of electrostatic spray application technologies and systems and where he attained the position of Corporate Technical Director. He was awarded 12 US Patents and 50 corresponding foreign patents.

Besides his involvement with ESA, Bill was also a member of the National Fire Protection Association (NFPA) and on its Technical Committee on Finishing Processes, where he worked to develop appropriate fire safety requirements for the use of electrostatic spraying systems.

Bill graduated from Illinois Institute of Technology where he played basketball for four years and was captain his senior year. He served in World War II as a US Navy fighter pilot aboard the USS Randolph and saw action in the first carrier air raids on Tokyo, as well as the Iwo Jima and Okinawa campaigns. He was awarded a Distinguished Flying Cross and four Air Medals. He is mentioned on pages 134, 135 and 162 in Roy W. Bruce and Charles R. Leonard's book "Crommelin's Thunderbirds" (Naval Institute Press, Oct 1, 1994 - 228 pages) where he is referred to as Bill “Skull” Smart (see http://books.google.com/books?id=v5mAAAAAAAJ&q=smart#search_anchor). Later in life Bill was the Newsletter Editor for the Thunderbirds and helped plan their annual reunions.

Bill was very active in his hometown and served as President of the Washington Township School Planning Committee and as a member of the Washington Township School Board. He also served as Chairman of the Board

of the Jordan YMCA; was the treasurer of the Indianapolis Jazz Club for over 30 years and was an editor of the Jazz Notes publication.

Bill was a good husband (the widower of Alice V. Smart), father (of four: two daughters and two sons), grandfather (of nine), great-grandfather (of 12) and a friend to many. He will be missed, but the memory of his many thoughtful deeds will remain in the minds of all who knew him.

(Thanks to Al Seaver for putting this tribute together)

ESA Officers

President:

Dan Lacks, Case Western Reserve Univ.

Vice President

Shesha Jayaram, Univ. of Waterloo

Executive Council

Sheryl Barringer, Ohio State Univ.

Kelly Robinson, Electrostatic Answers, LLC

Rajeswari Sundararajan, Purdue Univ.

Calendar

- ✦ ICAES-2012, 7th Int'l. Conf. on Applied Electrostatics, Sept. 17-19, 2012, Dalian Univ. of Tech., Dalian, China, Contact: Secretariat Office, Ph: +86 411 84708576-604, ICAES2012@163.com, website: <http://www.icaes-2012.org/windows/index.htm>
- ✦ 12th Int'l. Conf. of Electrostatics, Electrostatics - 2013, April 2013, Budapest, Hungary, Contact: info@electrostatics2013.org website: <http://www.electrostatics2013.org/>
- ✦ ESA 2013, June 11-13, 2013, Cocoa Beach, Florida, USA, Contact: Charlie Buehler
- ✦ ESA 2014, June 17-19, 2014, Univ. of Notre Dame, South Bend, Indiana, USA, Contact: David Go

ESA Conf. Pictures

The Friendly Society

Pictures from the ESA 2012 Joint Conference may be found at http://electrostatics.us/esa/2012/page_01.htm.

Thanks to all who took their hand at the camera and many thanks to Al Seaver for downloading and archiving the multitude of photos (over a thousand).

ESA 2012: Joint Conference Summary

by Ahmed Gad

This year the electrostatic joint conference was held on June 12–14 in Cambridge, Ontario (Canada). Over 130 researchers from 17 different countries attended the meeting, making it the second largest ESA conference. Through good management, Professors Shesha Jayaram (General Chair) and Maciej Noras (Technical Chair) were successful in handling this large number of attendees. In addition to the outstanding research work presented and discussed throughout the oral and poster sessions, the kind hospitality of the hotel staff made the meeting enjoyable in all aspects.

In addition to the 3 days of the conference, a welcoming reception accompanied the registration process on the evening of June 11. Registration material included a USB



“key” carrying the conference proceedings; sponsored by Sunless Inc., Trek Inc., Turbosonic Inc., and the University of Waterloo. On June 15 there was a trip to Niagara Falls, a powerful and popular destination in Ontario. The trip included a visit to a winery and wine tasting.

Professor Shesha Jayaram would like to thank the high voltage group (grad students and post-doctor fellows) at the University of Waterloo for their continuous help during the preparation stage, at the conference venue, during the educational session, and on the Niagara Falls trip. Thanks also to Al Seaver for the many photos of our conference.



Technical Program

The conference attracted a large number of abstracts and 96 papers were finally accepted; 54 were presented in 18 oral sessions and 33 were demonstrated in a special evening poster session. Almost half the oral presentations were given by students. Two sessions were chaired by students, giving them an opportunity to show their leadership skills. Among the oral presentations were 6 keynote lectures and 5 invited talks covering the main topics of electrostatics: particle control and charging, triboelectrification, breakdown and discharge, atmospheric and space science applications, measurement and instrumentation, and biological and medical applications.



ESA 2012: Joint Conference Summary (cont'd.)

Educational Session (University of Waterloo)

Aside from the technical sessions, conference attendees visited the University of Waterloo (UW) for an educational session. The visit included electrostatic demonstrations and tours through several UW facilities: High Voltage Engineering Laboratory (HVEL), Institute of Quantum Computing (IQC), and Waterloo advanced technology laboratory (WatLab). Eight interesting setups presenting the basics of electrostatics, as well as some practical applications, were given by S. Davis (Wabash Instrument Corporation), T. Jones (University of Rochester), S. Kamachi (Interlead, Inc.), K. Robinson (Electrostatic Answers LLC), J. Smallwood (Electrostatic Solutions, Ltd.), W. Vosteen (Monroe Electronics Inc.), W. Wayman (Xerox Corporation), and A. Thulin.



Conference Banquet

Dinner was served at the closing banquet, accompanied by classical guitar background music. Afterwards, students were awarded for their presentations. The first place awards were given to 7 students, second place awards to 10 students, and third place awards to the remaining. The IEEE-IAS EPC gave 3 awards to the transaction papers having the most impact in the year. Commemorative ESA kite pins were given to students who were first-time participants for the meeting.



ESA 2012: Joint Conference Summary (cont'd.)

As usual, the banquet concluded with a talk by Glenn Schmieg. He began by discussing how A. D. Moore initiated the electrostatics society after his retirement. Then, Glenn mentioned several educational & philosophical aspects he had learned from Moore. One day Glenn found a “magic” natural stone which, after having been spun in one direction, stopped and spun in the opposite direction. After some investigation, Moore showed Glenn how he had produced a piece of material having the same “magic” characteristics. Glenn also entertained us with some very interesting experiments with water/balloons and smoke/candles, inspiring all attendees regardless their age.



Said about the 2012 Conference

Steve Cooper: *“Very good job with this conference Shesha! Also, we were all very impressed with your university, most especially your lab and your students!”*

Peter Castle: *“In my opinion this has been one of the most successful meetings for many years, not only in terms of attendance, particularly students and young researchers, but in the high quality of the program shown by the stimulating and significant presentations coupled with strong representation from many countries”*

Kelly Robinson: *“Over the subsequent 40 years participation at the Annual Meetings had never come close to that first meeting ... until 2012 where there were 137 registered. It was great seeing so many students and young professionals in Cambridge”*

Gerard Touchard: *“That was a great conference, very well organized, very interesting and very friendly. Congratulations and thank you very much. We had a wonderful time in Niagara”*

Daniel Lacks: *“Thanks to all of you from U of Waterloo for doing such an amazing job! I think the general consensus is that it was the best ESA meeting ever!”*

Lucian Dascalescu: *“You have all done an excellent work. I have very much appreciated the elevated technical level of the conference and the multiple opportunities to interact with my colleagues and friends from all over the world. The trip to Niagara Falls was SUPER!”*

Loong-Tak: *“Previously I have attended several conferences but this was unique, very well organised, a technical visit to Univ. of Waterloo and a nice trip to Niagara falls are very much appreciated. The hotel staff and the students at the desk were very helpful”*

Subba Reddy: *“Thanks again for a fantastic job by Prof Shesha, Prof Noras and the entire team”*



Some Personal Reflections on the Evolution of the Electrostatics Society of America (ESA) and the IEEE-IAS Electrostatic Processes Committee (EPC)

G.S. Peter Castle, Life Fellow IEEE, Life Member ESA

While driving home from Cambridge to London ON following the final banquet of the highly successful 2012 Joint Conference on Electrostatics, I was given to reminisce about the evolution that has occurred in electrostatics in the 42 years since ESA was founded. This was stimulated by at least two things. The first was the participation not only of ESA and EPC but also the international groups of IEJ from Japan, SFE from France and the International Electrostatic Assembly (IEA). The second was the reminder to some of us, and revelation to many others, from Glenn Schmiege during his banquet talk of the tremendous debt we all owe to an amazing man, ESA founder, the late Prof A.D. Moore.

I first met A.D. in 1968 while I was still a graduate student at the University of Western Ontario. He came to present his Lecture-Demonstration to our first year class of engineering students. For this “show” he had not only designed and personally constructed all the equipment, he actually invented a new type of induction electrostatic generator, the “Dirod”. His entertaining style coupled with a well thought out approach did the seemingly impossible. He captivated his audience consisting of high energy and somewhat self-absorbed Frosh. We were extremely privileged to have him return and repeat this for the next 12 years or so by which time he was well into his late 80’s. It was clear to me on meeting him in 1968 that here truly was a unique personality as well as a pioneer and champion for the somewhat esoteric field that we all know as electrostatics.

In Oct of 1970 I attended my first EPC meeting. It was held in Chicago as part of the Industry General Applications Group of the IEEE (now known as the Industry Applications Society (IAS)). At this meeting the papers were practically all devoted to electrostatic precipitation (my doctoral field of study). As a relatively new graduate I was thrilled to meet two giants of the field who were in attendance, Professor Gaylord Penny, inventor of the two stage electrostatic precipitator and Dr. Harry J. White, author of THE classic text on electrostatic precipitation.

However I was puzzled that A.D. was notable by his absence. I subsequently learned the reason was that he had given up on IEEE following a long and frustrating period where he tried everything to convince the appropriate authorities that the IEEE definition of electrostatics was incorrect and needed modification. The official published definition to this day is “the branch of science that treats of the electric phenomena associated with electric charges at rest in the frame of reference” (italics added). It seems that although this may be acceptable to theoreticians, it clearly does not mirror the reality of engineering applications where charge motion occurs all the time. A.D. could not tolerate such a misleading statement from a body that was supposed to represent engineers to the world.

His solution was to form an independent organization, the Electrostatics Society of America or as he liked to refer to it “The Friendly Society”. The organizational meeting was held in Aug of 1970, two months prior to the EPC meeting mentioned above. Within a very short period of time ESA adopted a more relevant definition; “the class of phenomena recognized by the presence of electrical charges, either stationary or moving, and the interaction of these charges, this interaction being solely by reason of the charges and their positions and not by reason of their motion” (italics added). In practical application this means that a process is governed by electrostatics when the electric field effects predominate over magnetic field effects.

ESA 2012



Some Personal Reflections ... (cont'd.)

In electric circuit terms this implies that the ratio of voltage to current is very high. In other words electrostatic devices can simply be thought of as having very high impedance.

I was privileged to attend the first technical meeting of the newly formed ESA. It was held in June 1971 in Albany, New York as part of the much larger meeting of the American Meteorological Society. This came about with the help of two ESA founding members, meteorology specialists Vince Schaeffer and Bernie Vonnegut. The electrostatics community probably accounted for less than one third of the 140 total attendees. This time I was not disappointed as A.D. was not only present but front and center as he proudly led the electrostatics portion of the program. A number of papers on different aspects of electrostatics were given but not surprisingly many dealt with lightning. However to me the technical highlight of this conference was to meet Prof Senichi Masuda and listen to his spellbinding presentation where he introduced North America to the concept of his "electric curtain". In his talk he not only described its operation in detail, but also offered a complete theory of operation and confirmed it all through a film showing the cleaning of excess paint off the walls of a powder coating booth. I was interested to see that his curtain was featured in a number of papers presented at the Cambridge 2012 Conference.

In the years immediately following the formation of ESA, the two major electrostatics groups in North America, EPC and ESA, tended to live in splendid isolation. Although there were a few of us who managed to keep a "foot in both camps" so to speak, in general the two organizations appealed to somewhat different interests although electrostatics was clearly a common theme for each (these differences beg a reminiscence on its own!). The seed that A.D. planted soon found further fruition with the formation of IEJ in Japan in 1976 and SFE in France in the nineties. Similar organizations took hold in other European countries, notably Poland, and also in China. During this period electrostatics evolved into many new areas and international collaboration became more common. ESA, and to a greater extent EPC, welcomed presentations from colleagues from overseas and these steadily increased in numbers. However for many years the main forums for international conferences have been the quadrennial meetings sponsored by the Institute of Physics in Great Britain and the European Working Party on Static Electricity in Industry that sponsored meetings in many centers in Europe.

In 2003 EPC and ESA experimented with a joint conference held in Little Rock, Arkansas followed in 2006 by the first full joint meeting sponsored EPC, ESA, IEJ and SFE and held in Berkeley California. This showed the attraction of the concept and a second joint meeting followed in Boston in 2009. The third held in June 2012 in Cambridge, Ontario has certainly been one of the most successful yet. It attracted 137 attendees with particularly good representation from students and young researchers. The high quality program featured stimulating and significant presentations offered by participants from many countries. A particular highlight was a demonstration workshop that A.D. would have loved. It was organized by Prof Tom Jones and featured eight presenters. Clearly the joint program has come of age and any differences between EPC and ESA are long past.

In hindsight it seems fortuitous that A.D. ran into such intransigence within the bureaucracy of IEEE. Otherwise ESA and the resulting spinoffs may not have occurred. In recognition of the debt we owe to A.D. one thing remaining is to see if we can convince IEEE to update their definition to match the reality of the 21st century. (Interestingly the more flexible venue of Wikipedia offers a partial improvement but I think not up to A.D.'s standard.) I will see what needs to be done in respect to IEEE and will keep you informed.

Electrostatics
Society of America



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!!SAVE THE DATE!!
ESA-2013 Annual Meeting
June 11-13, 2013
Cocoa Beach, FL, USA