



**2014/2015 Division & Class Report
to the
ACerS Board of Directors**

Division/Class: Electronics Division

Current Division/Class Officers:

Chair: Timothy J. Haugan
Chair-elect: Haiyan Wang
Vice Chair: Geoff L. Brennecka
Secretary: Brady J. Gibbons
Secretary-Elect: Rick Ubic
Trustee: Winnie Wong-Ng
President's Council Student Advisors (PCSA) Representative to ED: Brian Donovan, University of VA

Incoming Division Officers:

Chair: Haiyan Wang
Chair-Elect: Geoff L. Brennecka
Vice-chair: Brady J. Gibbons
Secretary: Rick Ubic
Secretary-Elect: Jon Ihlefeld
Trustee: Winnie Wong-Ng
President's Council Student Advisors (PCSA) Representative to ED: TBD at MS&T15

Summary of Meetings and Activities Held/To Be Held (from Oct. 2014 through Oct. 2015):

- 1) ED Executive Committee Meeting at MS&T14, Pittsburgh PA, Oct. 12, 2014
- 2) ED General Business Meeting at MS&T14, Pittsburgh PA, Oct. 13, 2014
- 3) ED Executive Committee Meeting at EMA 2015, Orlando FL, Jan. 21, 2015
- 4) ED Executive Committee Meeting to be held at MS&T15, Columbus OH, Oct. 4, 2015
- 5) ED General Business Meeting to be held at MS&T15, Columbus OH, Oct. 5, 2015

Future Planned Meetings/Activities (from Nov. 2014 – October 2015):

- 1) ED Executive Committee Meeting at EMA 2016, Orlando FL, Jan. 22, 2016
- 2) ED Executive Committee Meeting to be held at MS&T16, Salt Lake City UT, Oct. 2016
- 3) ED General Business Meeting to be held at MS&T16, Salt Lake City UT, Oct. 2016

New Initiatives/Opportunities:

Electronic Materials and Applications Conference

The 6th Annual Electronic Materials and Applications conference (EMA 2015) was held jointly with the Basic Science Division in Orlando, FL from January 21 to 23, 2015. The number of symposia and supporting events at EMA 2015 and EMA 2016 are the same as EMA 2014, and the number of abstracts/attendees to EMA 2015 was ~300 also the same as EMA 2014, indicative of a mature steady-state situation; after much discussion, the organizers have chosen to focus on maintaining this size for EMA rather than attempting to grow in order to maintain the community feel, high collision frequency, and overall high quality experience of the meeting. This does not mean that the meeting is

stagnant, as several new symposia are introduced each year to replace others with less interest. One new feature for EMA 2015 was highlighting a Young Professional (YP) speaker in nine of the symposia, each provided with ½ registration support. EMA is achieving a well-deserved reputation for being a student and YP-friendly meeting with very strong fundamental science, while also covering application-relevant topics.

In 2015 ED continued the strategic initiative to attract student and young professional participation by supporting and investing in both of these groups with a significant number of registration waivers. Students were supported with an awards program with 1st, 2nd and 3rd receiving \$250, \$150 and \$100, respectively, for each type of presentation, oral and poster. ED leadership also secured a corporate sponsor to further support the highlighted student talks, by providing 2 days of boxed lunches.

EMA 2015 Student Awards: (\$1,000 total)

Place:	Oral:	Poster:
1 st (\$250)	Christina Rost, NCSU	Gye Hyun Kim, MIT
2 nd (\$150)	Edward Sachet, NCSU	Youngho Jin, Georgia Tech
3 rd (\$100)	Jon Mackey, U Akron	Jun-Young Cho, Seoul National U

EMA 2015 Lunches for Student Presentations: \$1500, Radiant Technologies

EMA 2015 Student Registration Waivers: \$1650

Jon Mackey, U Akron	\$150	George Baure, U FL	\$150
Edward Sachet, NCSU	\$150	Ashutosh Giri, UVA	\$150
Jerry Contreras, UTPA	\$150	Abram Ramirez, UTPA	\$150
Mehdi Pakmehr, U Buffalo	\$150	Tanveer Dar, Del Ahila U, India	\$150
Christina Rost, NCSU	\$150	Aprana Agrawal, Del Ahila U, India	\$150
Joel Walenza-Slabe, Oregon St	\$150	Nopsiri Chaiyo, KMIT, Thailand	\$150
Jesus Saldana, UTPA	\$150		

EMA 2015 Young Professional Half-Waivers: \$2502

Ke Wang, Tsinghua, China	\$278	Jon Ihlefeld, Sandia	\$278
Emmanouil Kioupakis, Univ. MI	\$278	Fei Li, Xi'an Jiaotong U	\$278
Elizabeth Paisley, Sandia	\$278	Changwon Park, ORNL	\$278
Joey Luther, NREL	\$278	Daniel Feezell, UNM	\$278
Gang Wang, China Acad. Science	\$278		

MS&T Conference

In addition to supporting EMA, ED has maintained investments to support students and others at MS&T2015 by budgeting \$1,000 for symposia support and \$500 support for ED's PCSA representative liaison to attend MS&T.

New Membership Growth

ED has adjusted its membership strategy significantly in 2014 and 2015 to focus on increasing membership through investments in youth and developing new foreign Material Advantage (MA) chapters. Through this strategy, membership grew from 713 to ~890 (~25%) in 2014, or about 180 members which resulted in the largest growth rate in a decade. A significant reduction in the average age of the division membership occurred as a total of ~25% of current ED members are students. A significant number of these students are from outside the US, including two Material Advantage Chapters established in Latin America, one from Brazil with 15 students and the other from Colombia with 19 students.

These efforts have continued in 2015, led primarily by past ED Presidents Steven Tidrow and Amar Bhalla. In particular:

- Brazil: efforts are underway to recruit students, and it's expected that 2 or 3 new chapters will form in 2015 or 2016
- India: several new MA chapters are expected in 2016
- Columbia: formation of a 2nd MA chapter is targeted for 2016
- Slovakia: ~20 members could potentially start a new ED chapter
- Frostburg University, Maryland: ~20 new students have been recruited to start a new MA chapter
- Alfred University: ~ 10 new members have been identified to join ED.

New Membership Nurturing/Development

The many new efforts in growing ED and ACerS membership are exciting, but ED now faces a challenge to sufficiently nurture and develop these new members into sustaining ACerS members. Towards this end, several initiatives have been started in 2015.

- Materials Science Demonstration kits prepared by PCSA were purchased and sent to the 7 seven new/almost-approved MA Chapters, for total cost of \$560. It is hoped that these kits will develop the interest of new students in ceramics and both retain and grow membership.
- To provide more regular communication and interaction between the executive team and ED members, a monthly 'webinar' series is being planned, with science lectures offered by ED members; these primarily target new international MA Chapters, but will be available to anyone interested.
- A new "Outreach and Education" endowed fund has been discussed at length and is in the process of being established. Several ED members are interested in donating to such a fund to focus on ED-related outreach and education, and ED is prepared to match some amount of these donations once a fund has been established. As noted below, ED is requesting that the Board provide guidance for the establishment of such a fund, potentially with additional matching, and presumably under the auspices of the CGIF.

Action Items for ACerS Board Consideration at October 3, 2015 meeting: As noted immediately above, ED is interested in establishing a fund to support ED-focused outreach and education activities. As such, ED requests that the Board provide 1) guidance on how this might be established and approval if necessary, 2) 1:1 matching funds for the first \$25,000 of this fund.

Issues/Concerns:

Significant growth in the number of student members in the Electronics Division requires a long-term strategy that continues to support and nurture students and the Young Professionals groups. Such strategies must include significant interactions that are a win for the youth, a win for the Young Professionals, a win for the Electronics Division and win for ACerS. By supporting young members through student and Young Professional levels, a higher portion of those members will remain ACerS members for life. Such a strategy requires investments that may at best be break-even in terms of funding that arrives due to youth membership income. Such growth will be difficult to maintain and sustain financially at the divisional level without an overall partnership and strategy among ACerS, the Electronics Division, other divisions, and likely external partners.

Divisions, like the Electronics Division, need to work hand-in-hand with the Ceramic and Glass Industry Foundation (CGIF), to cohesively attract small and medium sized sponsorships to grow membership and maintain responsiveness of the division(s) in support of industry while CGIF attracts medium and larger company sponsorships that allow large special projects at the Society level.

The Electronic Materials and Applications conference is relatively new and is serving in large part as the Division meeting for the Electronics Division (ED) and Basic Sciences Division (BSD). The attendance started at ~ 170 the first two years, and is now at the targeted size of ~300 the last 2 years. The conference does not have regular industry support yet, so it is anticipated that ED and BSD will continue to support the conference with ~\$4-5 K per year for registration waivers for invited speakers, students and young professionals. The structure of EMA is flexible enough to allow a large number of invited speakers, which increases attendance and is a strong format to provide excellent programming and content.

Additional Items of Note:

2015 Hoffman Scholarship Award Winner (\$2000) and Plaque (~\$90): Kyle Grove, Colorado School of Mines
The Hoffman Scholarship consists of a \$2000 tuition award to encourage academic interest and excellence among undergraduate students in the area of ceramics/materials science and engineering.

2015 Edward C. Henry Prize: (\$500) and 2 Plaques (~\$180): Adam A. Heitmann and George A. Rossetti, Jr., Univ. of Connecticut
The Edward C. Henry Prize is awarded to the provided annually to an outstanding paper reporting original work in the Journal of the American Ceramic Society or the Bulletin (during the previous calendar year) on a subject related to electronic ceramics. This year's Edward C. Henry Prize was for "Thermodynamics of Ferroelectric Solid Solutions with Morphotropic Phase Boundaries," *Journal of the American Ceramic Society*, 97 [6] 1661-1685 (2014)

2015 ED members being elevated to the Society Fellows: Haiyan Wang (Texas A&M), Parans Paranthaman (Oak Ridge National Laboratory), Michael Lanagan (Pennsylvania State University), and Jacob L. Jones (North Carolina State University). One new fellow nomination has been submitted as a 2016 candidate.

Financial Statement: attached

Submitted By: Timothy J. Haugan