

**2020/2021 Division & Class Report  
to the  
ACerS Board of Directors**

Division/Class: **Basic Science Division**

**Current Division/Class Officers:** (complete as appropriate for your Division or Class)

Chair: Kristen Brosnan  
Chair-Elect: Yiquan Wu  
Vice-chair: Wolfgang Rheinheimer  
Secretary: Edwin Garcia  
Secretary-Elect: Amanda Krause  
Counselors: John Blendell, Paul Salvador, Dunbar Birnie  
Board of Directors Liaison: Makio Naito  
PCSA Representatives: Matt Julian

**Incoming Division Officers:** (complete as appropriate for your Division or Class)

Chair: Yiquan Wu  
Chair-Elect: Wolfgang Rheinheimer  
Vice-chair: Edwin Garcia  
Secretary: Amanda Krause  
Secretary-Elect: Ricardo Castro  
Counselors: Kristen Brosnan, John Blendell, Paul Salvador  
Board of Directors Liaison: Makio Naito  
PCSA Representative: TBD

**Summary of Meetings and Activities Held/To Be Held (from Oct. 2020 through Oct. 2021):**

For the virtual MS&T 2020, the BSD was the lead organizer for 5 symposia, on: Emergent Materials under Extremes and Decisive In-Situ Characterizations; Grain Boundaries, Interfaces, and Surfaces in Functional Materials; Materials Informatics; Mechanochemical Synthesis; and the Rustom Roy Symposium; and co-organized an additional 11 symposia, including the Humanitarian Symposium with the PCSA. For MS&T being virtual, BSD only supported 2 registrations for attendees at the meeting. The 2020 Sosman award was postponed until MS&T 2021 and will be Wayne Kaplan from the Technion.

The Ceramographic contest overseen by Klaus van Benthem of BSD was held again at the virtual MS&T. For MS&T 2020, 1st (\$75 award) and 2nd place (\$50 award) were awarded in the SEM, Scanning Probe and Undergraduate categories, with a \$1500 prize for the Roland B. Snow Award. Digital submissions were used starting in 2019 and the entire content went to virtual in 2020 with the posters displayed on the ceramics.org website. Winning entries may appear on the back covers of the Journal of the American Ceramic Society throughout the year.

There were 19 applicants for the 2020 GEMS award, and four finalists were chosen: Edward Lee Pang, Dominik Hahn, Iva Milisavljevic, and Lukas Porz. The Sapphire level award went to Lukas Porz.

The 2021 GEMS award has 19 applicants. At this time, it is unclear whether all will be talks at MS&T or recorded. The number of awards will remain the same at 3-5 depending on the evaluation of the award committee.

EMA 2021, held virtually, featured about 380 participants. BSD contributed with four symposia on Characterization of Structure-Property Relationships in Functional Ceramics, Point Defects and Transport in Ceramics, Dislocations in Ceramics: Processing, Structure, Plasticity, and Functionality, Evolution of Structure and Chemistry of Grain Boundaries and Their Networks as a Function of Material Processing). Haiyan Wang (BSD) presented a plenary lecture. Beyond this, the winter workshop (held virtually) in conjunction with EMA and ICACC meetings was supported with student registration waivers.

The 2020 Gordon Research Conference on Ceramics that the BSD supports was postponed until 2022. The meeting is on a 2-year cycle. BSD plans to continue support for the GRC and BSD member and former chair Ivar Reimanis is the Ceramics GRC chair.

#### **Future Planned Meetings/Activities (from Nov. 2021 – October 2022):**

BSD plans to participate in MS&T 2022 at a similar level to previous year, 3-4 symposium and supports at the \$2000/symposium level if in-person. It is recommended by the officers to not skip the Sosman in the future (as was done in 2020), and plans are in process to continue this award lecture, whether in person or virtual going forward. The 2022 Sosman lecture will be Bill Fahrenholtz of Missouri S&T. In addition, BSD would like to start poster prizes for BSD organized symposia starting in 2022, picked by the symposium organizers.

BSD also is involved in EMA 2022. The meeting is currently planned to be held in-person and virtually (hybrid meeting). Eight symposia have a BSD member as lead organizer: S1 – Characterization of Structure–Property Relationships in Functional Ceramics: James LeBeau, S2 - Advanced Electronic Materials: Processing Structures, Properties, and Applications: Eric Patterson, S3 – Frontiers in Ferroic Oxides: Synthesis, Structure, Properties, and Applications: John Heron, S8 – Structure–Property Relationships in Relaxor Ceramics: Marco Deluca, S10 – Point Defects and Transport in Ceramics: Tiffany Kaspar, S13 - Agile Design of Electronic Materials: Aligned Computational and Experimental Approaches and Materials Informatics: Mina Yoon, S14 – Functional Materials for Biological Applications: Jennifer Andrew, S15 - Advanced Microelectronics: Aiping Chen. Three symposia have significant BSD participation: S4 – Complex Oxide Thin Films and Heterostructures: From Synthesis to Strain/Interface-engineered Emergent Properties, S5 – Mesoscale Phenomena in Ferroic Nanostructures: From Patterns to Functionalities, S11 – Evolution of Structure and Chemistry of Grain Boundaries and Their Networks as a Function of Material Processing. Amanda Krause and Shen Dillon from BSD are co-organizing with Electronics Division.

There is one symposium with focus on interfaces organized by BSD leaders at ICACC22. Wolfgang Rheinheimer and John Blendell are co-organizing FS-5: Current Challenges in Microstructural Evolution: From Fundamentals to Engineering Applications. This symposium will be invited speaker only per rules of ICACC for Focused Symposia.

Gordon Research Seminar and Conference in Solid State Studies in Ceramics support will continue, the next meeting is chaired by Ivar Reimanis and is in August 2022.

**New Initiatives/Opportunities:**

- Communication sent after MS&T 2020 & virtual annual BSD meeting to all BSD members updating members on activities at annual meetings and award nomination deadlines
- **BSD Early Discovery Award:** BSD is proposing a new award for early career (<10 years after last degree) member of BSD who has demonstrated a contribution to basic science in the field of glass or ceramics. Draft rules have been submitted to the ACerS Board. The proposed Early Discovery Award will be presented to the BSD membership at the October membership meetings.
- BSD officers refined the Sosman rules to add more structure and support D&I to the selection process, rules to be presented at MS&T21 and voted on in December 2021.
- Networking activity planned at next in-person meeting (tabled until 2022).

**What action has the Division taken to address diversity and inclusion (award and officer nominations, invited speakers, etc.)?**

- BSD Early Discovery Award: Draft rules in process for presentation at MS&T 2021 and October ZOOM for this new award.
- BSD officers refined the Sosman rules to add more structure and support D&I to the selection process, rules to be presented at MS&T 2021 and October ZOOM meeting.

**Action Items for ACerS Board Consideration at the October 16, 2021 meeting:**

Continue to allow GEMS and support BSD membership meetings to be virtual. We had fantastic participation and more volunteers at the virtual membership meeting.

**Issues/Concerns:**

Hybrid meetings are a large concern for how BSD will continue to operate. We suggest allowing us to hold our membership and executive meetings with virtual option going forward, at no cost to the divisions.

Many officers will not be present for the in-person MS&T 2021 meeting. In addition, many international participants can not join the meeting which will make voting on upcoming BSD rules changes not in line with D&I initiatives.

**Additional Items of Note:**

Again, timing of EMA and ICACC is problematic. We have mentioned this before and will continue to do so as it affects many BSD members. Board should take an active role on this.

**Financial Statement:** (Including year-end summary of expenditures from the Division's Funds)

Attached.

**Submitted By:** Kristen Brosnan