

Spring 2018

Chair: Vincent Prantil
Secretary: John BakerVisit the Mechanics Division Website: <https://sites.asee.org/mechanics/>

Message from the Chair

Dear Colleagues and Friends of the Mechanics Division,

May is here and it's time again to get plans in shape for the annual conference. This year, we're meeting in Salt Lake City, Utah. So get your hiking boots packed and join us for a great four days together. As is customary for the spring newsletter, we outline many of the Mechanics Division activities taking place at the conference, including the program, division awards, banquet, and business meeting. This year's business meeting will be an "early riser's breakfast meeting" on Tuesday morning so set your alarms and plan on breakfast fare together. My thanks to Devin Berg who suggested and ordered the donuts, pastries and coffee for our business meeting.

JOIN US IN SALT LAKE CITY June 24-27, 2018

This year's ASEE Annual Conference & Exposition will be held in Salt Lake City, UT June 24-27, 2018. More information on the conference is available at:

<https://www.asee.org/conferences-and-events/conferences/annual-conference/2018>

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Please allow me to personally thank division officers who have worked throughout the year to put together the mechanics program and to keep the division running. These include Devin Berg (Program Chair), Carisa Ramming (Program Chair Elect), John Baker (Secretary), Jacob Moore (Treasurer), Philip Cornwell (Awards Chair), and, especially, Brianno Coller (Past Division Chair). I would like to expressly thank Brianno for stepping in and fulfilling several of my duties as Program Chair and Chair due to medical leave. I'm happy to return and join you all in Salt Lake this year for what looks to be a good gathering. Of course, we are grateful to the dozens of mechanics educators who will be contributing papers and presentations, as well the always-reliable reviewers who provided vital feedback en route to preparing our technical sessions.

I look forward to seeing you all in Utah!

Vince Prantil
Chair of the ASEE Mechanics Division 2017-2018

2018 Mechanics Division Annual Conference Program

Program Chair, Devin Berg
Program Chair-Elect, Carissa Raming

Division Mixer (Grand Ballroom A-H, Sunday, June 24, 4:30 to 6:00)

The conference kicks off on Sunday afternoon with the Division Mixer. This is a great chance to catch up with old friends and meet new colleagues from our division and from the entire ASEE community. Please look for the Mechanics Division banner.

Note: All room numbers below are located in **Convention Center - Salt Palace**.

Technical Sessions

This year, the Mechanics Division has a total of 28 peer-reviewed papers being presented in six different technical sessions. As listed below, the sessions have been organized thematically.

Monday, June 25

M339: Dynamic Pedagogies for Engineering Dynamics, 11:30 AM - 1:00 PM, Room 255 D

M439A: Student Advancement in Mechanics of Materials, 1:30 PM -3:00 PM, Room 255 B

Tuesday, June 26

T139A: Curriculum and Instruction in Engineering Mechanics, 8:00 AM-9:30 AM, Room 355 F

T539: Enhancing the Statics Classroom, 3:15 PM-4:45 PM, Room 255 F

Wednesday, June 27

W139: Applications of Technology in Mechanics Education, 8:00 AM-9:30 AM, Room 255 D

W339: Teaching Methods for Engineering Mechanics Courses, 11:30 AM-1:00 PM, Room 255 B

Hands-on Demonstrations Session

Session T439, Tuesday, June 26, 1:30 PM-3:00 PM, Room 151 F

This is a session where mechanics educators get 5 minutes to present their most effective classroom demonstrations and hands-on activities.

Business Meeting

Tuesday, June 26, 7:00 AM-7:55 AM, Room 250 C (see p.4 for more information)

Awards Banquet (Off-Site)

Tuesday, June 26, 7:00 PM-9:00 PM

Location: Squatters Pub Brewery, 147 West Broadway.

<https://squatters.com/salt-lake-city/location.aspx>

Speaker: Dr. Donald Bloswick

<https://mech.utah.edu/faculty/donald-bloswick-professor/>

To attend the Awards Banquet, you need to purchase a ticket from ASEE. The cost is \$75 per person if you buy it in advance, or \$85 if purchased on-site. This year's awardees are listed on the following page.

2017–2018 Mechanics Division Awards

Ferdinand Beer and E. Russell Johnston, Outstanding New Mechanics Educator Award

Jacob Moore, Penn State Mont Alto

Archie Higdon Distinguished Educator Award

Arun Srinivasa, Texas A&M University

Mechanics Division James L. Meriam Service Award

Not awarded this year

Mechanics Division 2018 Best Paper Award

Standardizing the Statics Curriculum across Multiple Instructors

K.B. Demoret, J.L. Schlegel, and M.J. Jensen, Florida Institute of Technology

Mechanics Division 2017 Best Presentation Award

Demo or Hands-on? A Crossover Study on the Most Effective Implementation Strategy for Inquiry-Based Learning Activities

Brian P. Self and James M. Widmann, Cal Poly, San Luis Obispo

Congratulations to the recipients! Also, we gratefully thank our sponsors, McGraw-Hill and Pearson, for their continuing support of the awards banquet.

Also, although not official awards, we would also like to recognize the presenters who received the highest presentation scores in their respective technical sessions at the 2017 conference. They are:

M339: Learning Environments for Statics, Dynamics, and Mechanics of Materials

Demo or Hands-on? A Crossover Study on the Most Effective Implementation Strategy for Inquiry-Based Learning Activities (Brian P. Self, James M. Widmann)

M439: Enhancing Instruction in Statics, Dynamics and Mechanics

Online-Only Statics Compared to a Flipped Classroom (Anna K. T. Howard, Matthew T. Stimpson)

M539: Assessment and Grading in Mechanics

Algorithmic Grading Strategies for Computerized Drawing Assessments (Mariana Silva, Matthew West)

T539: Addressing the Human Dimension in Teaching Statics, Dynamics, and Mechanics

One Paragraph and a Few Simple Questions – Giving Statics Problems Human Context (Sean Moseley)

W139: Teaching Statics, Dynamics and Mechanics of Materials

Helping Students to Feel Mechanics (Ryan Barrage, G. Wayne Brodland, Rania Al-Hammoud)

Mechanics Division Annual Business Meeting

Date: Tuesday, June 26, 2018 7:00 AM to 7:55 AM

Location: Room 250 C, Convention Center - Salt Palace

All members and prospective members of the Mechanics Division are invited to the division business meeting. Division members will be allowed to vote. Draft minutes from last year's business meeting are provided on the following page.

One of the primary activities of the division business meeting is to elect new officers for the following positions.

Director. A director is a voting member of the Executive Committee. Main duties: attend the Executive and Business Meetings at the Annual Conference, elect the Program Chair Elect, and participate in decision making as issues arise. Directors must also be willing to accept a nomination for Program Chair Elect, which succeeds consecutively to Program Chair, Chair, and Immediate Past Chair. Term: 4 years.

Secretary. Main duties: Attend Executive and Business Meetings at the Annual Conference and record minutes; prepare ballots for elections of officers; prepare and distribute Newsletter (twice per year); assist Chair with ensuring that Division agenda is executed. Term: 1 year.

Treasurer. Main duties: Keep records of accounts; issue checks to award winners; pay and process other items as necessary. Term: 1 year.

If interested, please submit a nomination by 4:00pm on Monday, June 25, 2018. Nominations should be emailed to Vince Prantil (prantil@msoe.edu). Include a brief statement of your current/past involvement in the Mechanics Division and your interest in serving in the office for which nomination is sought. If a person is being nominated for more than one position, please state preference. Self-nominations and/or multiple nominations are permitted.

If you have any items of business that you would like to be placed on the agenda for the Division Business Meeting, please contact Secretary John Baker (john.r.baker@uky.edu) by Friday, June 22, 2018.

2017 Annual Business Meeting Minutes (DRAFT)

Note: A final version will be approved at the 2018 Mechanics Division Business Meeting.

ASEE Mechanics Division Business Meeting Minutes

Wed. June 28, 2017 11:30 AM to 1:00 PM

Grant

Hyatt Regency

Columbus, OH

Attendees: Brianno Coller, John Baker, Matthew Jensen, Anna Howard, LeAnn Faidley, Brian Self, Rungen Nathan, Devin Berg, Kristi Shryock, Phillip Cornwell, Linda Craugh, Nicolas Libre, Carisa Ramming, Jul Davis, Jacob Moore, Peter Carnell, Christine Masters, Ren Tubergen

Call to Order – 11:31 am

1. PIC III Chair (Sorby)
 - a. Overall Conference Update
 - a.i. 337 Business, Social, and Panel Sessions
 - a.ii. 332 Technical Sessions
 - a.iii. 1606 Published Papers
 - a.iv. 57.4% papers published from abstracts submitted
 - b. PIC III Update
 - b.i. PIC III paper count down from 367 in 2016 to 311 in 2017. PIC III and membership increased from 5877 in 2016 to 5968 in 2017.
 - c. ASEE Update
 - c.i. ASEE overall membership is considered to be steady
 - c.ii. Significant changes to conference schedule implemented in 2017.
 - d. Program Chair Timeline:
 - d.i. July: Updated officer information and Call for Papers due
 - d.ii. September: Workshops, Distinguished Lectures Preparations
 - d.iii. October: Abstracts Due, Special Projects Fund Applications
 - d.iv. November: Workshops/Distinguished Lecture Due, Abstract Decision, and Session Requests
 - d.v. January: Papers due, Bylaws/Awards information due for Feb. ASEE Board meeting.
 - d.vi. April/May: Finalize sessions, Final paper submitted
2. Welcome/Introductions (Coller)
3. Approval of 2016 Business Meeting Minutes
 - a. Approved (Howard, Self)
4. Nomination of Officers
 - a. Director 1: Renard Tubergen
 - b. Director 2: Brian Self
 - c. Treasurer: Jacob Moore
 - d. Secretary: John Baker
 - e. Program Chair Elect: Carisa Ramming
 - f. Awards Chair: Phil Cornwell
 - g. Membership Chair: Jen Kadlowec

5. Nominated Officers Approved
 - a. Brianno to file new officer form with Headquarters

6. Report from Division Officers
 - a. Chair (Brianno Coller)

Vince Prantil was unable to complete Program Chair work for health reasons. Will assume for now he will assume the Division Chair position for 2017-2018. If he does not, Brianno will continue as chair, with Chris Papadopoulos remaining as past chair. Devin Berg will move to Program Chair.
 - b. Acting Program Chair (Coller)
 - b.i. Report on abstracts submitted, accepted and rejected
 - b.i.1. 35 abstracts submitted
 - b.i.2. 33 abstracts accepted
 - b.i.3. 2 rejected
 - b.ii. Report on papers submitted, accepted and rejected
 - b.ii.1. 28 papers submitted
 - b.ii.2. 25 papers accepted
 - b.ii.3. 2 papers removed by authors
 - b.ii.4. 0 papers in poster session
 - b.ii.5. 3 rejected
 - b.iii. Report on how many reviewers
 - b.iii.1. 116 reviewers
 - b.iv. Report on sessions
 - b.iv.1. 5 technical sessions plus hands-on co-sponsored with civil and mechanical.
 - b.iv.2. 1 business meeting (executive committee met off site)
 - b.iv.3. 1 awards banquet
 - c. Program Chair-Elect (Berg)
 - c.i. Report on the awards Banquet, number of attendees, amount spent, about the speaker etc.
 - c.i.1. about 32 Attendees (24-25 paying)
 - c.i.2. \$1,755 collected by Monday 3 pm
 - c.i.3. \$1,718 spent
 - d. Secretary (Baker)
 - d.i. Only a spring Newsletter this past year.
 - e. Treasurer (Masters/Moore) – Financial information not available from ASEE HQ at time of meeting. Financial report provided by Moore subsequent to business meeting. To be added to these minutes as an appendix for reference.
 - f. Awards Committee (Self)
 - f.i. Report on sponsors of awards
 - f.i.1. \$ 2000 McGraw-Hill
 - f.i.2. \$ 1000 Pearson
 - f.ii. Any other award related matters
 - f.ii.1. Not a lot of nominations. Need more. Consider people at your institution.
 - g. Membership committee
 - g.i. Membership down a few.
 - h. Archivist/Hands-on Mechanics Website (Berg)

The content for which the website was created is in his hands. Will work on getting it posted. There are 35-40 more to go. These will slowly trickle up. We have about 10/year in hands-on session. Would be nice to get these on the website. Brianno will follow up with people who did submit to hands-on session. We might consider a “best of” competition in the hands-on session and get those uploaded to the website. We might also have handouts

that list the website for hands-on mechanics, and also the website to join the division. This could possibly be a two-sided business card.

h.i. www.handsonmechanics.org

i. Webmaster (Coller)

i.i. Website not updated in a while. Might migrate off of Google sites. Tim Manicum says ASEE is considering requiring all divisions to standardize. We are on the IT list to discuss. This might involve use of WordPress.

7. New Business

a. Changes to the Bylaws.

Change #1:

Existing Language: Article 3. Membership. The members of this Division are those members of the American Society for Engineering Education who identify to ASEE their wish to be affiliated with the group each year and who pay the division dues of \$2 per year.

Proposed New Language: Article 3. Membership. The members of this Division are those members of the American Society for Engineering Education who identify to ASEE their wish to be affiliated with the group each year and who pay the division dues. The dues will be established or changed through a majority vote of the attendees present at the Annual Business Meeting.

Motion: Tubergen, Second: Ramming
Motion Passed

Change #2:

Raise annual dues to \$3
Motion: Masters, Second: Moore
Motion Passed

Discussion of Bylaws: We need to add a diversity statement. Division officers should consider examples from other divisions.

Items b-f were general discussion topics, with no motions or votes:

- b. Former Mechanics Division Chair, Timothy Philpot, has passed away. His family is making MD-Solids available to the public. The 4th edition of his Mechanics of Materials text is available from Wiley and Sons as of the past January.
- c. Chris Papadopoulos asked that we reaffirm intention to DOI (Digital Object Identifier) past papers with a spending cap of \$300. There were no objections.
- d. There was a suggestion that next year, we need to talk about what to do with our store of funds. Members should try to think of projects.
- e. There was a suggestion that we need to nominate a member to serve on the ASEE Diversity Committee. LeAnn Faidley is interested.
- f. The following question was raised: "Should general membership decide who goes into officer track?"

8. Adjourn (Coller) – 1:26 pm.

Addendum to the 2017 Business Meeting Minutes:

Because division financial information was not available from ASEE Headquarters, the financial report could not be provided at the business meeting on June 28, 2017. It was provided via email by Treasurer, Jacob Moore, to Brianno Collier and John Baker, on July 7, 2017. The report highlights follow:

- Everything is now finalized with ASEE for the 2015-2016 fiscal year (up through September 2016).
- The starting balance was \$12763.45, and the ending balance was \$11137.20, which takes into account the last change where they were not going to charge the 30% admin fees for banquet ticket sales.
- The 2015-2016 fiscal year is now complete, and there are no inconsistencies to resolve.
- Jacob Moore is still awaiting official records for 2016-2017. He has been told ASEE should be caught up with that by September. So, it is hoped final numbers for 2016-2017 will be available well before the 2018 conference.

2017-18 Mechanics Division Officers and Standing Committees

Chair: Vincent Prantil, Milwaukee School of Engineering
(414) 277-7451, prantil@msoe.edu

Past Chair: Brianno Collier, Northern Illinois University
(815) 753-9944, bcollier@niu.edu

Program Chair: Devin Berg, University of Wisconsin-Stout
(715) 232-1133, bergdev@uwstout.edu

Program Chair Elect: Carisa Ramming, Oklahoma State University
(405) 744-9056, carisa.ramming@okstate.edu

Directors: Masoud Rais-Rohani, Mississippi State University (2014–18)
(662) 325-8430, masoud.raisrohani@maine.edu

Carisa Ramming, Oklahoma State University (2014–18)
(405) 744-9056, carisa.ramming@okstate.edu

Ning Fang, Utah State University (2015–19)
(435) 797-2948, ning.fang@usu.edu

Kristi Shryock, Texas A&M University (2015–19)
(979) 845-0735, kshryock@tamu.edu

Julian Davis, University of Southern Indiana (2016-20)
(812) 461-5489, jldavis2@usi.edu

Anna Howard, North Carolina State University (2016-20)
(919) 513-4019, anna_howard@ncsu.edu

Brian Self, California Polytechnic State University (2017-21)
(805) 756-7993, bself@calpoly.edu

Renard Tubergen, Calvin College (2017-21)
(616) 526-7313, rqt3@calvin.edu

Secretary: John Baker, University of Kentucky
(270) 534-3114, john.r.baker@uky.edu

Treasurer: Jacob Moore, Penn State Mont Alto
(717) 749-6209, jmoore@psu.edu

Webmaster: Brianno Collier, Northern Illinois University
(815) 753-9944, bcollier@niu.edu

Archivist: Ralph Flori, University of Missouri – Rolla
(573) 341-7583, reflori@mst.edu

Nominating Committee: Christopher Papadopoulos, Chair (christopher.papadopoulos@upr.edu), Tom Nordenholz, Chair (tnordenholz@csum.edu), Eric Bell (ebell@triton.edu)

Membership Committee: Matthew Jensen, Chair (mjensen@fit.edu), Julian Davis (jldavis2@usi.edu), Jennifer Kadlowec, (kadlowec@rowan.edu), Shelley Lorimer (lorimers@macewan.ca)

Awards Committee: Phillip Cornwell, Chair (cornwell@rose-hulman.edu), Jim Papadopoulos (jpapadopoulos@partners.org), Charles Krousgrill (krousgrill@purdue.edu), Masoud Rais-Rohani (masoud.raisrohani@maine.edu)

Notes: Two Directors are elected at each annual Business Meeting for terms of four years. Directors who have served for at least one year are eligible to be elected as Program Chair Elect (and to serve consecutively as Program Chair and Chair). Secretary and Treasurer are ex-officio (non-voting) elected at each annual Business Meeting for terms of one year. Webmaster and Archivist are ex-officio (non-voting) and are elected for terms of one year. The Nominating Committee is specified to consist of the three most recent Past Chairs. The Membership and Awards Committee are appointed to serve for terms of one year.

Mechanics Division New Officer Introduction

Renard Tubergen, Calvin College - Executive Committee Director (2017-21)



Ren Tubergen is an Associate Professor at Calvin College. He received his Ph.D. in Mechanical Engineering from Purdue University. After leaving Purdue, he went to industry where he served in several entrepreneurial roles in aerospace and automotive markets before starting his own product development consulting business. After working at that for over a decade, he has joined the Calvin faculty. Dr. Tubergen is passionate about First Robotics, having been involved at various levels for over 15 years. He is currently starting a new team at a local high school while serving on the Board for the West Michigan District Event.

Brian Self, Cal Poly, San Luis Obispo - Executive Committee Director (2017-21)



Brian Self obtained his B.S. and M.S. degrees in Engineering Mechanics from Virginia Tech, and his Ph.D. in Bioengineering from the University of Utah. He worked in the Air Force Research Laboratories before teaching at the U.S. Air Force Academy for seven years. Brian has taught in the Mechanical Engineering Department at Cal Poly, San Luis Obispo since 2006. During the 2011-2012 academic year he participated in a professor exchange, teaching at the Munich University of Applied Sciences, and he did a second exchange at the Karlsruhe University of Applied Sciences in the Fall of 2017. His engineering education interests include collaborating on the Dynamics Concept Inventory, developing model-eliciting activities in mechanical engineering courses, inquiry-based learning in mechanics, and design projects to help promote adapted physical activities. Brian has been a member of the Mechanics Division since 2000, and was recently named a Fellow of ASEE. Other professional interests include aviation physiology and biomechanics.

Mechanics Division News and Announcements

Archival Materials

Got any interesting Division materials from past decades? Specific materials might include articles, photographs, Readiness Test results, role of the Mechanics Division in developing the mechanics curriculum, etc. Please contact Archivist Ralph Flori at (573) 341-7583, reflori@mst.edu.

ASEE Awards

ASEE has numerous awards available including the Lifetime Achievement Award which might be appropriate for one of our Mechanics Division Members that have been huge contributors throughout their careers. The nominations generally open in November and close in January. For a full list of awards, please visit www.asee.org/member-resources/awards/full-list-of-awards.

ASEE Lifetime Achievement Award in Engineering Education

The ASEE Lifetime Achievement Award recognizes individuals who have retired or who are near the ends of their careers for sustained contributions to education in the fields of engineering and/or engineering technology. The contributions may be in teaching, education, research, administration or educational programs, professional service, or any combination thereof.

The award was established through the efforts of the ASEE Lifetime Achievement Award Steering Committee and funded by an endowment created for this award by the contributions of ASEE Life Members and like-minded, Not-Yet-Life Member Fellows.

The Award: The recipient will receive a \$1,000 honorarium, travel assistance up to \$1,000 for travel to the ASEE Annual Conference to receive the award, and a commemorative plaque.

Eligibility: Candidates shall have demonstrated sustained contributions to education in the fields of engineering and/or engineering technology throughout their careers. These contributions may be in any combination of the following:

- Demonstrated excellence in teaching either undergraduate or graduate courses
- Mentorship of students beyond the classroom
- Important contributions to the understanding of teaching and learning through the conduct and publication of educational research
- Demonstrated leadership through the administration of departments, schools or college of engineering or engineering technology
- Volunteer activity and leadership in education societies

The candidates will be retired or near retirement and will have devoted their careers primarily to engineering education. ASEE membership is not required.