

Message from the Chair

Dear Mechanics Division Members,

I hope you are having/had a great Spring semester/quarter. It is hard to believe that summer is almost here, and with it, the 2023 ASEE Annual Conference in Baltimore. The ASEE Annual Conference is always one of the highlights of my summer. Now some of you may be saying to yourselves, "Phil, if that's a highlight of your summer, that is just sad. You need to do more interesting things and get a life." Au contraire. What could be more fun and exciting than meeting with friends and colleagues (also called "future friends") who are passionate about mechanics education and who share my goal of developing outstanding engineers? I genuinely love it! I always learn something new, and I leave with ideas to try, restored enthusiasm for my chosen profession, and new contacts. I hope you all can make it! I also hope you will encourage your mechanics colleagues at your respective universities to attend and to become involved in the Mechanics Division. In order for our division to thrive, we always need enthusiastic new members and each of us need to help recruit those members.

JOIN US IN BALTIMORE June 25-28, 2023

This year's ASEE Annual Conference & Exposition will be held at the Baltimore Convention Center. More information on the conference is available at:
<https://www.asee.org/events/Conferences-and-Meetings/2023-Annual-Conference>

Our Program Chair, Geoff Recktenwald, has done a great job putting the program together for this year's conference. As usual, it will consist of technical sessions and our ever-popular Hands-On Mechanics session. In addition to attending the technical sessions, please try to attend the awards banquet on Tuesday night and the business meeting on Wednesday. Attending the business meeting, during which we will elect new Directors, the Program Chair-Elect and other officers, is one of the best ways to get involved with the division. To learn more about the duties of each of these roles, check out the descriptions here: <https://sites.asee.org/mechanics/bylaws/>. You can find all our sessions at this link: <https://nemo.asee.org/public/conferences/327/registration/sessions>. Filter for Mechanics Division to see our sessions. If you would like to participate in our Hands-On Mechanics session then email Geoff (gdr@msu.edu) directly with a title and brief description of your demonstration.

Finally, I want to thank all the officers and volunteers who have worked hard this year to ensure that the Mechanics Division runs smoothly. In particular I would like to thank Geoff Recktenwald

(Program Chair), Jul Davis (Past Chair), Chris Venters (Program Chair-Elect), Nicolas Libre (Director), Sahithya Reddivari (Treasurer), Jacob Moore (past Treasurer who has been working with Sahithya), Jean Batista Abreu (Secretary), Devin Berg (Webmaster), Chris Masters (Awards Committee Chair), the Directors, and all the committee members.

I look forward to seeing you in Baltimore!

Phil Cornwell

2022-2023 ASEE Mechanics Division Chair

Professor Emeritus, Rose-Hulman Institute of Technology

Professor of Mechanical Engineering, United States Air Force Academy

phil.cornwell@afacademy.af.edu

Message from the Program Chair

Dear Mechanics Division,

I would like to express my gratitude for all of the authors, reviewers, and division leaders.

As you know, all ASEE divisions rely on the collective effort of their members to review conference papers. Your helpful critiques have improved the clarity and quality of the papers that will be presented in June. Thank you for your helpful comments to authors and being responsive to ever changing deadlines and many emails. You've made this job a pleasure.

To the authors, thank you for presenting your research in our division. Your efforts to communicate your creative research endeavors will enrich the field of Mechanics. I look forward to seeing you in Baltimore and discussing the great papers you've submitted.

I'm grateful for the support of the leadership team, Jul Davis, Phil Cornwell, and Chris Ventures. Special thanks to Carisa Ramming and Masoud Rais-Rohani for assisting with a few last-minute reviews.

Best,

Geoff Recktenwald

2022-2023 ASEE Mechanics Division Program Chair

Associate Chair for the Undergraduate Program

Mechanical Engineering

Michigan State University

gdr@egr.msu.edu

2023 Mechanics Division Annual Conference Program

Program Chair, Geoffrey Recktenwald

Program Chair-Elect, Chris Venters

ASEE Division Mixer

Sunday, June 25, 2023, 3:30 PM to 5:00 PM. This is a great opportunity to catch up with old friends and meet new colleagues from our division and from the entire ASEE community.

Technical Sessions

(Please note that all times are in the Eastern Time Zone)

Monday, June 26, 2023

11:00 PM to 12:30 PM: Will this be on the Mechanics Test? Concept Inventories & Exams

1:30 PM to 3:00 PM: Keeping Mechanics Real - Real World Examples & Systems Thinking

3:15 PM to 4:45 PM: Teaching Mechanics: Modes and Methods

Tuesday, June 27, 2023

1:30 PM to 3:00 PM: Special Session: Hands-On Mechanics

3:15 PM to 4:45 PM: Digital Methods in Mechanics - Teaching with Digital Tools

7:00 PM to 9:00 PM: Mechanics Division Awards Banquet (Ticketed)

Wednesday, June 28, 2023

11:00 AM to 12:30 PM: Mechanics Division Business Meeting

1:30 PM to 3:00 PM: Miscellaneous Mechanics: COVID & FBDs

Hands-on Demonstrations Session

(Mechanics Division – co-sponsored by other divisions)

Tuesday, June 27, 2023

1:30 PM to 3:00 PM: Mechanics educators will give demonstrations of effective hands-on activities they have developed and/or used in engaging students and enhancing the learning outcomes in mechanics courses.

Mechanics Division Awards Banquet

(Ticketed event: \$75.00 advanced registration and \$85.00 on-site registration)

Tuesday, June 27, 2023

7:00 PM to 9:00 PM: Enjoy a great dinner with mechanics colleagues, meet new fellow mechanics educators, and share in celebrating award honorees for best paper at this year's conference and best presentation from last year's conference. All are welcome.

Mechanics Division Business Meeting

Wednesday, June 28, 2023

11:00 AM to 12:30 PM: The Mechanics Division executive committee will report on their work in the past year. In addition, elections will be held for positions on the executive committee and various other committees. Come and get involved! Become a member and join the fun in the Mechanics Division!

2022–2023 Mechanics Division Awards

Ferdinand P. Beer and E. Russell Johnston, Jr., Outstanding New Mechanics Educator Awards:

- **Kevin McMullen**, Assistant Professor, Department of Civil and Mechanical Engineering, United States Military Academy
- **Andrea Arguelles**, Assistant Professor, Engineering Science and Mechanics Department, The Pennsylvania State University

2022 Best Presentation Award:

Paper: Work in Progress: Context Matters: A Comparative Study of Results of Common Concept Questions in Statics at Several Diverse Institutions

- **Christopher Papadopoulos**, University of Puerto Rico, Mayaguez Campus
- **Eric Davishahl**, Whatcom Community College
- **Carisa Ramming**, Oklahoma State University
- **Jean Batista Abreu**, Elizabethtown College
- **William Kitch**, Angelo State University

2023 Best Paper Award:

Paper: Improving students' learning through Inquiry-Based Learning Activities as pre-training for Mechanics of Materials classes

- **Huihui Qi**, Teaching Assistant Professor at University of California, San Diego
- **Changkai Chen**, University of California, San Diego
- **Richard Eugene Vallejo Jr**, University of California San Diego
- **Trevor Keoki Oshiro**, University of California San Diego
- **Edward Zhou Yang Yu**, University of California, San Diego
- **Isabella Fiorini**, University of California, San Diego

Mechanics Division News and Announcements

Free Online Statics Textbook: Engineering Statics: Open and Interactive

Contributed by Daniel W Baker

Are you looking for a high-quality, no-cost textbook to teach Engineering Mechanics: Statics? Engineering Statics: Open and Interactive (<https://engineeringstatics.org>) is an open educational resources (OER) book collectively authored and reviewed by many of our Mechanics Division members. Over 10 institutions have adopted the book. Globally, 20,000+ users are viewing 110,000+ pages per month. Check it out and email Dan Baker dan.baker@colostate.edu with any questions.

Job Opportunity: Teaching and Research Postdoctoral Associate in Engineering Education

Contributed by Sara Atwood

Elizabethtown College invites applicants for a Teaching and Research Postdoctoral. The postdoctoral associate will contribute to a large NSF Broadening Participation in Engineering grant to develop, launch, and assess the Greenway Center for Equity and Sustainability in Engineering in partnership with the Greenway Institute in Vermont. The Greenway Center for Equity and Sustainability (GCES) will be an innovation campus that re-designs and re-centers engineering education around sustainability and core equity practices to empower students from underrepresented groups. This is a unique opportunity for an individual with a PhD in engineering education to develop an independent research agenda while gaining classroom teaching experience alongside award-winning teachers at an undergraduate-focused institution. The initial appointment can be made for up to two years and is a full-time, 12-month appointment from the date of hire.

The postdoctoral associate will be engaged in the engineering education research components of the Center including coordination, implementation, assessment, and dissemination of results, for approximately 2/3 of their time during the academic year and 100% of the time in summers. Teaching responsibilities will incorporate the other 1/3, focused on team-teaching mastery-based courses at Elizabethtown College with experienced faculty and grant senior personnel. The postdoctoral associate will participate in mentoring activities offered by the College, the PI, and the research collaborators, to support teaching, research, and preparation for a faculty role at an undergraduate-focused institution. Expected outcomes include a record of effective classroom teaching using innovative techniques including mastery-based pedagogy, as well as funded presentation of research at national meetings and publications in engineering education journals. Specific research duties will include supporting the development and implementation of evaluation protocols, definition of measures, data collection and analysis, and the development of a mastery-based reporting system. Teaching duties will be focused on undergraduate courses in Dynamics, Fluid Mechanics, and Thermodynamics.

The postdoctoral associate will have a PhD in engineering education, engineering, or a relevant field for a start date no later than August 1, 2023. The position is in-person based in Elizabethtown, Pennsylvania and will require periodic grant-supported travel to the Vermont campus location. Apply using this link: <https://etown.peopleadmin.com/postings/4919>.

Additional News Items

If you have any news items or announcements for the Fall 2023 newsletter, please send them to Jean Batista Abreu (batista@etown.edu) by September 30, 2023.

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 Devin Berg at (715) 232-1133, bergdev@uwstout.edu.

2022 ASEE Mechanics Division Annual Business Meeting Minutes (DRAFT)

Note: A final version will be approved at the 2023 Mechanics Division Business Meeting. Please forward any needed corrections via email to batistajc@etown.edu.

Meeting Time: Wednesday, June 29, 2022, 11:30 am – 1:00 pm CDT
Location: M100C, Convention center, Minneapolis, MN

Attendees: Anna Howard, Carmen Muller-Karger, Christopher Papadopoulos, Geoff Recktenwald, John Baker, Jennifer Kadlowec, Jul Davis, Masoud Rais-Rohani, Matthew Jensen, Nicolas Libre, Phil Cornwell, Shelly Lorimer, Sahithya Reddivari, James Lord, and other attendees listed on the signup sheet.

Call to Order – 11:35 am CDT

1. Welcome/Introductions (Jul Davis – chair)
2. Motion to approve 2022 business meeting minutes – minutes were approved unanimously (Motion: Anna Howard, Second: Phil Cornwell)
3. Conference Updates (Phil Cornwell – program chair)
 - 56 abstracts submitted (plus 13 from last year)
 - 39 final papers, the rest were rejected to withdrawn
 - 8 technical sessions, 2 special session, 1 join session with Mechanical Engineering division
 - The challenges of the new paper management system were discussed by the division chairs and members
4. Report from Division Officers
 - a. Treasurer's Report (Jacob Moore)
 - o Most up to date balance in BASS account: \$6,959.66 (as of 11/09/2022).
 - o Finances are decently normal
 - o Increase the ASEE membership by \$3 every year for five years, the BASS account fee will be dropped starting this year.
 - o Two awards were given this year, each \$750
 - o The \$1000 donation was spent for awards, plaque, and banquet fee for awardees
 - b. Nominating committee (Chair: Carisa Ramming): No updates to report
 - c. Awards committee (Amir Danesh-Yazdi on behalf of chair Christine Masters):
 - There was a shortage of nominations again this year. The committee requested the division members to share the award opportunities with their colleague and to be on the lookout for potential awardees
 - The in-person award banquet was well attended.
 - d. Membership committee (Geoff Recktenwald on behalf of chair Jennifer Kadlowec): No updates to report. The division members discussed the following topics:
 - Committee plan for attracting more people and increase visibility and engagement.
 - Efficient ways of spending membership money. The idea of waiving the membership fee for new members was discussed
 - e. Secretary (Nick Libre): Fall newsletter published in November 2021, the Spring newsletter published a few weeks before the ASEE annual conference in June 2022
5. Updates from PIC V chair (Peter Golding)
 - a. 2022 conf updates:
 - i. 3042 attendees

- ii. 762 session papers
- iii. 1365 unique authors
- b. ASEE recognizes the difficulties associated with the new paper management system (SLAYTE) and seek forward inputs to improve user engagement
- c. ASEE will form a new user group to review all future software purchases
- d. The ASEE Ethics committee resolved one case of aggressive meeting conduct
- e. ASEE participants will receive a \$50 discount for 2023 due or the next conference registration
- f. 25 papers nominated for best diversity, equity, and inclusion paper
- g. The bass account fee is dropped starting this year
- h. Recommendation to the division:
 - i. Consider adding plans to the division bylaw in order to define what happens if an officer cannot complete their term
 - ii. Seek for diversifying the leadership opportunities and increasing members engagement
- i. Questions and Discussion:
 - i. Jul Davis asked if it possible to waive the membership charge for new members while keeping it for old members. Peter didn't know the answer at the moment but he will find the answer and will share with the division.

6. Elections

- Program Chair Elect for 2024
 - o Chris Venters (uncontested, winner by acclamation)
- Director (2 vacancies – 4-year terms until 2026)
 - o Five nominations: Amir Danesh-Yazdi, James Lord, Jean Batista Abreu, and Nicolas Libre
 - o Nicolas Libre and Amir Danesh-Yazdi were elected
- Treasurer
 - o Sahithya Reddivari (uncontested, winner by acclamation)
- Secretary
 - o Jean Batista Abreu (uncontested, winner by acclamation)
- Webmaster
 - o Devin Berg will continue
- Nominating
 - o Added James Lord, Devin Berg rolled off
- James Lord, Jennifer Kadlowec, Matthew Jensen, and Shelly Lorimer were appointed to the membership committee
- Chairs of committees were not present, Masoud will contact them by email to see if they would continue
- Diversity Delegates
 - o Christopher Papadopoulos (Ethics)
 - o Carmen Muller-Karger (DE, 2022-2024I)

7. Leadership transition

Adjourn at 1:22 pm CDT

2022-2023 Mechanics Division Officers and Standing Committees

Chair: Phillip Cornwell, US Air Force Academy (2018-22)
(812) 243-2201, phil.cornwell@afacademy.af.edu

Program Chair: Geoffrey Recktenwald
(517) 432-3658, GDR@egr.msu.edu

Program Chair Elect: Chris Venters, East Carolina University (2018-22)
(252) 737-1028, ventersc@ecu.edu

Past Chair: Julian Davis, University of Southern Indiana
(812) 461-5489, julian.ly.davis@usi.edu

Directors:

Anna Howard, North Carolina State University (2020-24)
(919) 513-4019, annahoward@annahoward.com

Jakob Bruhl, The United States Military Academy (2020-24)
(845) 938-3131, jakob.bruhl@westpoint.edu

Dan Baker, Colorado State University (2021-2025)
(970) 491-0261, dan.baker@colostate.edu

Andrew Sloboda, Bucknell University (2021-2025)
(570) 577-1861, andrew.sloboda@bucknell.edu

Nicolas Libre, Missouri University of Science and Technology (2022-26)
(573) 341-7069, libren@mst.edu

Amir Danesh-Yazdi, Rose-Hulman Institute of Technology (2022-26)
(812) 877-8305, daneshya@rose-hulman.edu

Secretary: Jean Batista Abreu, Elizabethtown College,
(717) 361-4770, batistajc@etown.edu

Treasurer: Sahithya Reddivari, Georgia State University - Perimeter College
(678) 891-3735, sreddivari@gsu.edu

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

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

Nominating Committee: Carisa Ramming, Chair (carisa.ramming@okstate.edu), Vincent Prantil (prantil@msoe.edu), James Lord (ijklord@vt.edu)

Membership Committee: Jennifer Kadowec, Chair (kadowec@rowan.edu), Matthew Jensen (mjensen@fit.edu), Shelley Lorimer (lorimers@macewan.ca), James Lord (ijklord@vt.edu)

Awards Committee: Christine Masters, Chair (cbm100@psu.edu), Robert Efimba (refimba@howard.edu), Jennifer Holte (jholte@stthomas.edu), Hadas Ritz (hr32@cornell.edu), Sarah Wodin-Schwartz (swodinschwartz@wpi.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 - Opportunities for Involvement

All members and prospective members of the Mechanics Division are invited to the Mechanics Division Annual Business Meeting, held each year in June at the ASEE Annual Conference. One of the primary activities of the division business meeting is to elect new officers and fill available committee positions.

Some of the offices are described below. For a full list of positions, see “2022-23 Mechanics Division Officers and Standing Committees”, provided earlier in this newsletter.

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.

Officer Nominations:

You are welcome to submit nominations before or during the 2023 Mechanics Division Annual Business Meeting. Self-nominations and/or multiple nominations are permitted. Nominations may be submitted via email in advance of the meeting to Phil Cornwell (phil.cornwell@afacademy.af.edu). Include a brief statement of the nominee’s current/past involvement in the Mechanics Division and nominee’s interest in serving in the specific office. If a person is being nominated for more than one position, please state preference.

2023 Annual Division Business Meeting Agenda Items:

If you have any items that you would like included on the agenda for the Annual Division Business Meeting, please contact Division Secretary, Jean Batista Abreu (batistajc@etown.edu) or Division Chair, Phil Cornwell (phil.cornwell@afacademy.af.edu), before the 2023 Annual Business Meeting.