

Spring 2021

Chair: Masoud Rais-Rohani
Secretary: Vimal ViswanathanVisit the Mechanics Division Website: <https://sites.asee.org/mechanics/>

Message from the Chair

Dear Mechanics Division Colleagues and Friends,

I hope this message finds you in excellent health and high spirits. As we bid farewell to a very challenging academic year, I hope you will have an opportunity to take a break and indulge in some fun summer activities. Thanks to the contributions of all the authors and the hard work of our Program Chair, Jul Davis, we are poised to have a great technical program at this year's ASEE annual conference in July.

Our collective experiences with remote teaching and other interactions have prepared us for this year's virtual annual conference. Undeterred by its imperfections, we look forward to learning about all the exciting scholarly works our colleagues are planning to present. Our nine standard technical sessions will be augmented by our ever popular Hands-on Mechanics session, Division Awards Banquet (Social), and Division Business Meeting, all virtual. Both the social and the business meeting are open to all who are interested in attending without a need for conference registration. Please look for an email towards the middle of July with instructions on how to join each gathering.

JOIN US ONLINE July 26-29, 2021

This year's ASEE Annual Conference & Exposition will be a completely virtual experience. You can enjoy all the programs without leaving your home! For additional details, please visit:

<https://www.asee.org/annual-conference/2021>

If you are interested in participating in the Hands-on Mechanics session, please reach out to Jul Davis (julian.ly.davis@usi.edu) as soon as possible since we are quickly running out of time.

At this year's awards social, we will be recognizing some of our colleagues for their outstanding and distinguished contributions to mechanics education. Our business meeting will include highlights from the 2021 annual conference, as well as elections for Program Chair-Elect and Board of Directors. If you are interested in getting more involved in the mechanics division, please express your interest to me or any of the other officers listed on page 8 of this newsletter. You must be present in the business meeting to get elected.

I would like to take a moment to acknowledge and express my deepest gratitude to Jul Davis (Program Chair), Carisa Ramming (Past Chair), Phil Cornwell (Program Chair Elect), Vimal Viswanathan (Secretary), Jacob Moore (Treasurer), John Burkhardt (Treasurer Elect), Devin Berg (Webmaster), the Awards Committee led by Chris Masters, the Board of Directors, as well as all the volunteers, authors, presenters, reviewers, and moderators at this year's annual conference. The division is successful because of you. Thank you!

I look forward to seeing everyone at this year's annual conference.

With Best Wishes,

Masoud

Masoud Rais-Rohani
2020-21 Chair, ASEE Mechanics Division
Richard C. Hill Prof. & Chair
Department of Mechanical Engineering, University of Maine

Message from the Program Chair

I just wanted to say thanks to everyone for their patience and contributions in assembling these Mechanics Division sessions for the ASEE 2021 Annual Conference. I know that this year has been challenging to everyone in so-many ways; and I am simply excited and looking forward to great presentations from everyone. It was certainly, also, an interesting year to be Program Chair for all of you. I would especially like to thank Masoud Rais-Rohani for his guidance through this whole process. If anything goes correctly – I'm sure he deserves most of the credit!

Thanks!

Sincerely,

Jul

Julian Ly Davis
2020-21 Program Chair, ASEE Mechanics Division
Associate Professor of Engineering
University of Southern Indiana

2021 Mechanics Division Annual Conference Program

Program Chair, Julian Davis
Program Chair-Elect, Phillip Cornwell

Technical Sessions

(Please note that all times are in the Pacific time zone)

Monday, July 26, 2021

1:15 PM to 2:45 PM: The ABCs of FBDs

3:00 PM to 4:30 PM: Engaging the online classroom

Tuesday, July 27, 2021

9:45 AM to 11:15 AM: Using Technology to Support Learning in Mechanics

11:30 AM to 1:00 PM: Building Success in the Online Classroom

1:45 PM to 3:15 PM: Hands-On in the Online Classroom

3:30 PM to 5:00 PM: Hands-On Mechanics

3:30 PM to 5:00 PM: (Special Session Co-sponsored) Lessons learned from the pandemic: looking forward and looking back

Wednesday, July 28, 2021

8:00 AM to 9:30 AM: MASS: Mastery, Assessment and Success of Students

1:45 PM to 3:15 PM: The "Strengths" of Mechanics

3:30 PM to 6:30 PM: Awards Banquet - Meals with Mechanics

(<https://usi.zoom.us/j/93246312214>)

Thursday, July 29, 2021

8:00 AM to 9:30 AM: Bringing A Different Perspective

11:30 AM to 1:00 PM: Mechanics Division Business Meeting (Link to be released by ASEE just before meeting)

Hands-on Demonstrations Session

(Mechanics Division – co-sponsored by four other divisions)

Tuesday, July 27, 2021 3:30 PM to 5:00 PM Pacific Time

Mechanics educators will give a demonstration of the hands-on activities they have developed and/or used in engaging students and enhancing the learning outcomes in mechanics courses.

Mechanics Division Virtual Business Meeting

Thursday July 29, 2021 11:30 AM to 1:00 PM Pacific Time. This event does not require a conference registration to attend. The link will be released by ASEE a few minutes before the meeting and the program chair will email it to the listserv. See page 5 for further details.

Mechanics Division Virtual Awards Banquet Meals with Mechanics

Wednesday, July 28, 2021, 3:30 PM to 6:30 PM Pacific Time

Please join us for this virtual event using the Zoom link: <https://usi.zoom.us/j/93246312214>
You do not need to be registered for the conference to attend!

PROGRAM:

CORDIAL WELCOME: Masoud Rais-Rohani, Chair

CONVERSATION IN SMALL GROUPS

PRESENTATION OF DIVISION AWARDS

Archie Higdon Distinguished Educator Award

Bogdan Epureanu, University of Michigan

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

Jean Batista Abreu, Elizabethtown College
Ramathasan Thevamaran, University of Wisconsin-Madison

Meriam Service Award

Not Awarded

Mechanics Division Best Paper Award (2021 Conference)

*Sarah Wodin-Schwartz, Kimberly LeChasseur, and Caitlin Keller
Worcester Institute of Technology*

Mechanics Division Best Presentation Award (2020 Conference)

*Amie Baisley, University of Florida and
Keith Hjelmstad, Arizona State University*

RECOGNITION OF SPONSORS

INVITED SPEAKER: Charles Radovich, University of Southern California
What it Takes to Advise a Successful Competition Team

SOCIALIZATION

Mechanics Division Annual Business Meeting

Date: Thursday, July 29, 2021 11:30 AM to 1:00 PM Pacific Time

This is a virtual meeting

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 5:00pm on Wednesday, July 28, 2021. Nominations should be emailed to Masoud Rais-Rohani (masoud.raisrohani@maine.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 Vimal Viswanathan (vimal.viswanathan@sjsu.edu) as soon as possible.

2020 ASEE Mechanics Division Annual Business Meeting Minutes (DRAFT)

Note: A final version will be approved at the 2021 Mechanics Division Business Meeting. Please forward any needed corrections via email to vimal.viswanathan@sjsu.edu.

Minutes recorded by Kristi Shryock (on behalf of Vimal Viswanathan)

Meeting Time: Friday, June 26, 2020, 4:00-5:00 EST

Location: Virtual via Zoom

Attendees: Carisa Ramming, Devin Berg, Dan Mendelsohn, Ronald Averill, Amie Baisley, Amir Danesh, Anna Howard, Arnold Deffo, Ashraf Badir, Brian Self, Chris Papadopoulos, Christine Masters, Dom Dal Bello, Geoffrey Recktenwald, Hadas Ritz, Jacob Moore, Jakob Bruhl, John Burkhardt, Jul Davis, Masoud Rais-Rohani, Oludare Owolabi, Phil Cornwell, Rungun Nathan, Ventzi Karaivanov, Kristi Shryock

Call to Order – 4:00 pm

1. Welcome/Introductions
2. Conference Updates (Masoud Rais-Rohani)
 - 54 abstracts submitted, 1 rejected
 - 14 submissions withdrawn, 3 rejected at first draft stage
 - 36 papers finalized and presented
 - 4 papers tagged for diversity
 - 67 reviewers and 10 moderators
 - 9 tech sessions with 4 presentations each
 - 1 special session: Hands-on Mechanics
 - Virtual awards banquet and business meeting
3. Treasurer's Report (Jacob Moore)
 - Most up to date balance in BASS account: \$8,832.98.
 - Started fiscal year (9/1/19) with a balance of \$9,516.81.
 - All paperwork for the award honorariums has been received and should be paid out. This will be confirmed in the next update from ASEE HQ. If there are other expenses related to the banquet or awards, please reach out to Jacob.
 - Invoice has not been sent to McGraw-Hill for the usual \$2,000 support for the New Engineering Educator Award. Still do not have a contact person to send the invoice to at McGraw-Hill.
 - Finances are decently normal, and we will actually be up a bit this year because we do not have some of the normal expenses.
4. First Virtual Awards Banquet
 - Guest speaker: Professor Damiano Pasini, McGill University - Topic: Functional Mechanical Metamaterials
5. Division Bylaws Discussion

- Discussed filling of vacant roles and more clearly stating details on officer positions.
- It was agreed to continue Bylaws discussion at a later date due to time constraints of the business meeting
- Carisa Ramming to send out Doodle Poll for Scheduling

6. PIC Update on 2020 Conference (PK Imbrie)

- 3200 registrants
- >1700 papers
- <150 projections
- Increase of 8 papers from 2019
- Increase of 19 unique authors
- New PIC organization

7. Elections

- Director 1 and Director 2 (2020-2024)
 - o Anna Howard and Jakob Bruhl (uncontested, winner by acclimation)
- Treasurer
 - o Nominees: Jacob Moore and John Burkhardt
 - o Jul Davis – motion to make Jacob Moore Treasurer and John Burkhardt Treasurer-elect
 - o Second: Phil Cornwell
 - o Passed unanimously
- Secretary
 - o Vimal Viswanathan (uncontested, winner by acclimation)
- Program Chair Elect
 - o Phil Cornwell (uncontested, winner by acclimation)
- Awards Chair
 - o Christine Masters agreed to remain as Chair
 - o Geoff Recktenwald – committee
 - o Amir Danesh-Yazdi – committee

8. 2019 business meeting minutes approved (Motion: Jul Davis, Second: Rungun Nathan)

Adjourn 5:45pm EST

2020-2021 Mechanics Division Officers and Standing Committees

Chair: Masoud Rais-Rohani, University of Maine
(207) 581-4120, masoud.raisrohani@maine.edu
Past Chair: Carisa Ramming, Oklahoma State University
(405) 744-9056, carisa.ramming@okstate.edu
Program Chair: Julian Davis, University of Southern Indiana
(812) 461-5489, jldavis2@usi.edu
Program Chair Elect: Phillip Cornwell, Rose-Hulman Institute of Technology (2018-22)
(812) 877-8232, cornwell@rose-hulman.edu

Directors: Anna Howard, North Carolina State University (2020-24)
(919) 513-4019, annahoward@annahoward.com
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
Jakob Bruhl, The United States Military Academy (2020-24)
(845) 938-3131, jakob.bruhl@westpoint.edu
Chris Venters, East Carolina University (2018-22)
(252) 737-1028, ventersc@ecu.edu
Kristi Shryock, Texas A&M University (2019–23)
(979) 845-0735, kshryock@tamu.edu

Secretary: Vimal Viswanathan, San Jose State University
(408) 924-3841, vimal.viswanathan@sjsu.edu
Treasurer: Jacob Moore, Penn State Mont Alto
(717) 749-6209, jmoore@psu.edu
Treasurer-elect: John Burkhardt, The United States Naval Academy
(410) 293-6507, burkhard@usna.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: Devin Berg, Chair (bergdev@uwstout.edu), Vincent Prantil (prantil@msoe.edu), Brianno Coller (bcoller@niu.edu)

Membership Committee: Jennifer Kadowec, Chair (kadowec@rowan.edu), Matthew Jensen (mjensen@fit.edu), Shelley Lorimer (lorimers@macewan.ca), Nicolas Libre (libren@umsystem.edu), Geoffrey Recktenwald (GDR@msu.edu).

Awards Committee: Christine Masters, Chair (cbm100@psu.edu), Geoffrey Recktenwald (GDR@msu.edu), Amir Danesh-Yazdi (daneshya@rose-hulman.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 News and Announcements

Archival Materials

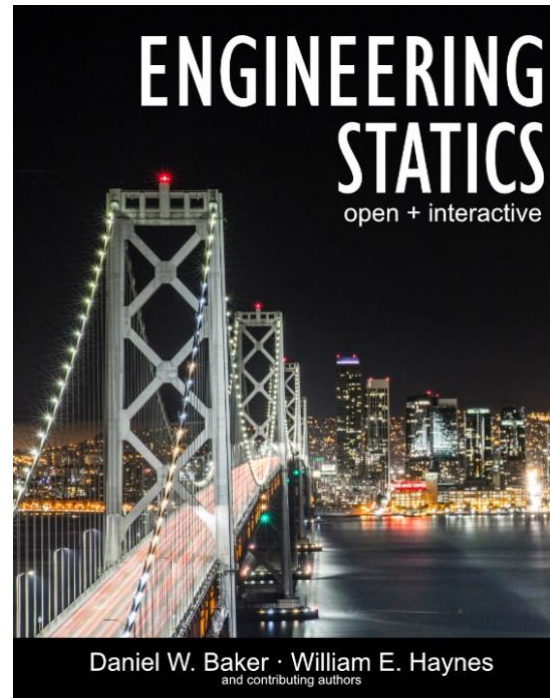
Got any interesting Division materials from past decades? Specific materials might include articles, photographs, Readiness Test results, role of the Mechanics Division in developing the mechanics curriculum, etc. Please contact Archivist Devin Berg at (715) 232-1133, bergdev@uwstout.edu.

Engineering Statics: Open & Interactive Textbook ready for Fall 2021 Launch!

Contributed by Daniel Baker

Our Mechanics Engineering Statics: Open & Interactive textbook <https://engineeringstatics.org> has continued to make progress. As you may remember from previous newsletters, Engineering Statics is a free, open-source textbook co-authored by several members of the Mechanics Division. The book includes all the typical topics covered in Engineering Mechanics: Statics and uses many GeoGebra interactives instead of traditional “static” figures. The book was successfully piloted this past year to over 500 students across four institutions and is available in both web and PDF form. Revisions will continue through spring and summer 2021. We welcome help with further proofreading, revisions, and developing additional original examples.

If you choose to use the textbook as a primary or supplementary textbook for your class, kindly let us know. To provide feedback or get involved, contact Dan Baker dan.baker@colostate.edu and William Haynes whaynes@maritime.edu.



New Paper on Teaching in the Pandemic Era

Contributed by Tariq Khraishi

A new paper has been published on: [Teaching in the COVID-19 Era: Personal Reflections, Student Surveys and Pre-COVID Comparative Data \(scirp.org\)](#)

This paper deals with moving to online teaching from in-person for a graduate Continuum Mechanics course. It has surveys and other supportive data on such transition as viewed or affected by the students.