

# AMD Technical Committee Meeting Mechanics of Soft Materials

November 12, 2019  
Marriot, Snowbird Room 2, 2<sup>nd</sup> floor, 1:00 PM—2:00 PM

Sung Hoon Kang (Chair)  
Qiming Wang (Vice-Chair)  
Victor Lefevre (Secretary)

Acknowledgement: Shengqiang Cai (Out-going chair responsible for 2019)

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## Agenda

- Introduction of everyone
- Discussion of meeting objectives
- Review of the 2019 IMECE
- Discussion of new directions in the field
- Nominations for the Editor Leadership Position
- Review of action items

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## What is the purpose of this TC?

- Provide a platform to bring the frontiers of soft materials mechanics research to one place for discussion and collaboration
- There are typically two classes of scientific/engineering advances in this TC
  - Innovative, applied mechanics in new devices, processes (e.g., 3D printing), and phenomena demonstrations (e.g., actuators)
  - Detailed modeling and experiments to resolve or solidify technologies and theories

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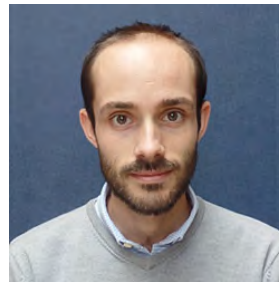
## 2019-2020 ASME AMD TC Leadership



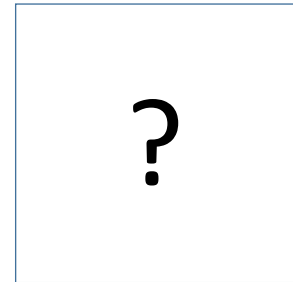
**Sung Hoon Kang**  
Chair  
Johns Hopkins Univ.



**Qiming Wang**  
Vice-Chair  
Univ. Southern California



**Victor Lefevre**  
Secretary  
Northwestern Univ.



**To be determined**  
Editor  
???

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## Summary in the 2019 IMECE

- We accepted 46 abstracts including 3 invited talks resulting in 10 sessions
- *Q: When will be the best time for us to request for the number of sessions from ASME? (We do not have the control of the time of each session)*
- *Q: How to make sure no overlap between two sessions.*

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## Sessions at the 2019 IMECE

<b>Tuesday November 12</b>	10:45 AM - 12:30 PM Technical Session	<b>11-1-1 Polymer Gel-1</b>  Track: Track 11 Mechanics of Solids, Structures and Fluids Topic: 11-1 Mechanics of Soft Materials Location: 255A, Convention Center	>
	2:00 PM - 3:45 PM Technical Session	<b>11-1-2 Polymer Gel-2</b>  Track: Track 11 Mechanics of Solids, Structures and Fluids Topic: 11-1 Mechanics of Soft Materials Location: 255A, Convention Center	>
	4:00 PM - 5:45 PM Technical Session	<b>11-1-3 Biomechanics and Biomaterials</b>  Track: Track 11 Mechanics of Solids, Structures and Fluids Topic: 11-1 Mechanics of Soft Materials Location: 255A, Convention Center	>

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## Sessions at the 2019 IMECE (cont'd)

<b>Wednesday November 13</b>	10:45 AM - 12:30 PM Technical Session	<b>11-1-4 Liquid Crystal Elastomer</b> Track: Track 11 Mechanics of Solids, Structures and Fluids Topic: 11-1 Mechanics of Soft Materials Location: 257, Convention Center	>
	2:00 PM - 3:45 PM Technical Session	<b>11-1-5 Soft Actuating Materials</b> Track: Track 11 Mechanics of Solids, Structures and Fluids Topic: 11-1 Mechanics of Soft Materials Location: 257, Convention Center	>
	4:00 PM - 5:45 PM Technical Session	<b>11-1-6 Mechanics of indentation, injection and cavitation</b> Track: Track 11 Mechanics of Solids, Structures and Fluids Topic: 11-1 Mechanics of Soft Materials Location: 257, Convention Center	>

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## Sessions at the 2019 IMECE (cont'd)

<b>Thursday November 14</b>	8:15 AM - 10:00 AM Technical Session	<b>11-1-7 Structure and Device</b> Track: Track 11 Mechanics of Solids, Structures and Fluids Topic: 11-1 Mechanics of Soft Materials Location: 250B, Convention Center	>
	10:15 AM - 12:00 PM Technical Session	<b>11-1-8 Constitutive Modelling</b> Track: Track 11 Mechanics of Solids, Structures and Fluids Topic: 11-1 Mechanics of Soft Materials Location: 250B, Convention Center	>
	2:00 PM - 3:45 PM Technical Session	<b>11-1-9 Aging and Damaging</b> Track: Track 11 Mechanics of Solids, Structures and Fluids Topic: 11-1 Mechanics of Soft Materials Location: 250B, Convention Center	>
	4:00 PM - 5:45 PM Technical Session	<b>11-1-10 Soft Matter Physics</b> Track: Track 11 Mechanics of Solids, Structures and Fluids Topic: 11-1 Mechanics of Soft Materials Location: 250B, Convention Center	>

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## Possible Topics/Chairs for IMECE 2020 (Portland, OR)

Polymer Gel  
 Biomechanics and Biomaterials  
 Liquid Crystal Elastomer  
 Soft Actuating Materials  
 Mechanics of indentation, injection and cavitation  
 Structure and Devices  
 Constitutive Modeling  
 Aging and Damaging  
 Soft Matter Physics  
 ...???

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## Invited talks (past and future)

- 2015 IMECE Invited:
  - Xuanhe Zhao (Duke – Chair of the 2014 TC)
  - Patrick Mather
- 2016 IMECE Invited:
  - Oscar Pamies Lopez (UIUC—Chair of the 2015 TC)
  - Katia Bertoldi
- 2017 IMECE Invited:
  - Chris Yakacki (CU Denver—Chair of the 2016 TC  
: *was unable to make it*)
  - Mark Messner, Markus Buehler, Francois Barthelat  
– too many this year.
- 2018 IMECE Invited:
  - Kevin Long (Sandia Nat. Lab.— Chair of the 2017 TC)
  - Ryan Hayward (UMass Amherst)
- 2019 IMECE Invited:
  - Shawn Chester (NJIT— Chair of the 2018 TC)
  - Kaushik Bhattacharya (Caltech)
  - Pradeep Sharma (Univ. of Houston)
- 2020 IMECE Invited:
  - Shengqiang Cai (UCSD — Chair of the 2019 TC)
  - TBD
  - TBD

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## Nominations for the Editor Leadership Position

- The Editor's responsibilities are:
  - Compose the February Newsletter to the TC
  - Work with the Secretary, Chair, and Vice-Chair to disseminate information to the TC via email throughout the year
  - Basic organizational work for the conferences
- The Editor advances to Secretary, Vice-Chair, and then Chair. The commitment is for the next 4-5 years.
- Nominees (including self-nominees) must submit a short bio (200 words or less) to the TC ([mechanics.soft.materials@gmail.com](mailto:mechanics.soft.materials@gmail.com))
- The TC will hold an email vote in 1-2 months.

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## A brief outline of the road to the 2020 IMECE

- November 2019– Collect topics/sessions/initial organizers
- December 2019 – Nominate and then vote for editor
- December/January 2020 – Promote participation and identify keynotes
- February/March 2020 (TBD) —Student Travel Awards
- Early March 2020 – typical initial deadline to submit abstracts for a paper
- Mid July 2020 – typical final deadline for talk only abstracts
- Early August 2020 – typical registration deadline
- IMECE 2020 – Portland, Oregon

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## Review Action Items and Adjourn

- Propose topics/sessions/organizers via email to [mechanics.soft.materials@gmail.com](mailto:mechanics.soft.materials@gmail.com) by November 30, 2019
  - Topic organizers should recruit presentations/papers in their individual topics
- Submit editor nominations (including self-nominations) via email to [mechanics.soft.materials@gmail.com](mailto:mechanics.soft.materials@gmail.com) by December 1, 2019
  - Nominees will need to submit a 200 word bio by December 10, 2019
  - Voting will take place via email shortly thereafter

Minutes of the ASME Technical Committee on Soft Materials Meeting  
Tuesday, November 12, 2019  
ASME IMECE 2019, Salt Lake City, UT

Chaired by Professor Sung Hoon Kang

Attendees: Fatemeh Ahmadpoor, Shawn Chester, Ming Guo, Sung Hoon Kang, Victor Lefèvre, Jianyu Li, Jerry Qi, Renee Zhao

The meeting was called to order by Sung Hoon Kang at 12:20pm.

After a round-table introduction of the attendees, Sung Hoon Kang discussed the following items:

- The purpose of the TC to *“Provide a platform to bring the frontiers of soft materials mechanics research to one place for discussion and collaboration”* and of its annual meeting during ASME IMECE.
- The leadership of the committee and the position of editor to be filled for the coming year.
- A summary of the TC’s contribution to ASME IMECE 2019: 46 abstracts including 3 invited talks resulting in 10 sessions

Followed a discussion on:

- Possible topics and chairs (biological materials, combining constitutive modeling and soft functional composites) for ASME IMECE 2020 in Portland, OR.
- Invited talks, possibly on biological materials/gels. Suggestion to have a speaker outside from the community to learn on other approaches on soft materials.
- The role of the Editor in the TC and self-nominations (Fatemeh Ahmadpoor, Nicolas Bouklas (e-mail), Jianyu Li, Renee Zhao)

The meeting was adjourned by Sung Hoon Kang at 12:50pm. Minutes submitted by Victor Lefèvre.