



ASME Materials Division 2019 Fall News

MESSAGE FROM THE CHAIR



Yong Zhu, Ph.D.
2018/2019 Chair, Materials
Division, ASME
North Carolina State University

It has been a great honor for me to serve on the ASME Materials Division Executive Committee for the past five years (2014-2019) and as the Division Chair for the past year. I have worked with a truly remarkable and dedicated group, including past Chairs (in chronological order) **Karl Jacob** (Georgia Institute of Technology), **Junlan Wang** (University of Washington), **George Voyiadjis** (Louisiana State University), **Xi Chen** (Columbia University), and **Valeria La Saponara** (University of California, Davis). It has also been a true pleasure to work with the current Executive Committee (EC) members including **Toshio Nakamura** (Vice Chair) of the State University of New York – Stony Brook, **Philippe Geubelle** (Program Chair) of University of Illinois – Urbana and Champaign, **Min Zhou** (Program Vice Chair) of Georgia Institute of Technology, **Hareesh Tippur** (Secretary) of Auburn University, and **Caglar Oskay** (Member-at-Large and Newsletter Editor) of Vanderbilt University. I want to thank them all for their support and dedicated service to the Division.

The Executive Committee has a number of major responsibilities including conference planning and execution, oversight of its two journals, management and development of awards, and interacting with the MD technical committees. According to the EC succession plan, Toshio will become Chair; Philippe, Vice Chair; Min, Program Chair; Hareesh, Program Vice Chair; and Caglar, Secretary. An incoming EC member will be selected at IMECE 2019. I will leave my post as the Division Chair after the IMECE with much confidence that the Materials Division will continue to prosper and grow under the great leadership and dedication of the future Executive Committee as well as Technical Committees.

The Materials Division has gone through a very active and successful year in 2018-2019 with the following highlights:

IMECE: The Materials Division continues to play active roles in the annual ASME International Mechanical Engineering Congress and Exposition (IMECE), largely owing to the hard work of all

the Technical Committees and the Program Chairs. At the upcoming IMECE 2019 in Salt Lake City, we are sponsoring/co-sponsoring 22 symposia with a total of 217 presentations/papers. While the MD track “Track 10 – Advanced Materials: Design, Processing, Characterization and Applications” (thanks to the Track Chairs **Philippe Geubelle** of UIUC and **Min Zhou** of Georgia Tech) serves as the hub for many of the materials centric symposia, a large number of the MD symposia are co-sponsored with other divisions such as Applied Mechanics, Energy, and Manufacturing. We are looking forward to two excellent plenary lectures for Track 10 by Professor **Zhigang Suo** of Harvard University and Professor **Irene Beyerlein** of UC Santa Barbara.

The Materials Division will host several events at IMECE 2019, on Tuesday (Nov. 12) and Wednesday (Nov. 13). In addition to the plenary lectures, the Nadai and SNN award lectures will take place on **Tuesday (Nov. 12) in the afternoon**, followed with the MD reception. We are looking forward to seeing many of you at these events.

Journals: The Materials Division is sponsoring two ASME journals – Journal of Engineering Materials and Technology (JEMT) and ASME Journal of Engineering and Science in Medical Diagnostics and Therapy (JESMDT). Under the leadership of the current Editor-in-Chief **Mohammed Zikry** of North Carolina State University and a group of dedicated Associate Editors, JEMT continues to do very well. JESMDT, our new journal, was launched in 2016 by the founding Editor-in-Chief **Ahmed Al-Jumaily**, aiming to bridge the gap between engineers and non-engineers and translate engineering knowledge into clinical applications in order to accelerate biomedical innovation, trial and commercialization. Members are encouraged to submit your high quality works to both journals.

Awards: The Materials Division is proud to be the home of several distinguished ASME awards both at the society level including the Sia Nemat-Nasser Early Career Award and the Nadai Medal, and at the division level including the ORR “JEMT” Best Paper Award and ORR Early Career Award. Each year, a rigorous nomination and evaluation process is taken to select the most deserving candidate for each award.

The following outstanding individuals received the awards and recognitions at IMECE 2018 in Pittsburg, Pennsylvania:

- **George M. Pharr** (Texas A&M University) received the 2018 **NADAI MEDAL AWARD**.
- **Tak-Sing Wong** (The Pennsylvania State University) and **Yihui Zhang** (Tsinghua University) received the 2018 **SIA NEMAT-NASSER AWARD**.

The following outstanding individuals will be recognized at IMECE 2019 in Salt Lake City, Utah:

- **Ellen Arruda** (The University of Michigan) receives the 2019 **NADAI MEDAL AWARD**.
- **Sinan Keten** (Northwestern University) receives the 2019 **SIA NEMAT-NASSER AWARD**.

Technical Committees: The Materials Division has 8 Technical Committees who have been essential in organizing the many symposia at the annual IMECE. The committees are encouraged to remain active and continue to grow the scope and quality of our technical activities and engage new members.

There were other activities in the Materials Division in 2018-2019 that are worth mentioning. On October 10-11, 2019, a symposium on Emerging Advanced Materials was held in Tokyo, Japan, honoring long-time ASME member and former MD Chair Professor Minoru Taya of University of Washington. MD was happy and proud to co-sponsor the event.

In closing, I would like to recognize and thank the many individuals who contributed to the continued success of MD during the past year. The Member-at-Large **Caglar Oskay** did an excellent job putting together this newsletter. **April Tone** of ASME is the new Senior Manager for Segment Operations, working specifically with the Engineering Sciences Segment, which the Materials Division is under. Since coming on board in the past June, April has been a great help serving as the interface between the Executive Committee and ASME headquarters. **Jessica Barnes** and **Ty Booker** of ASME have been instrumental in handling the logistics for the Division events at the IMECE. **Stacey Cooper** of ASME has always been extremely helpful in taking care of the technical sessions at IMECE. Finally, my thanks go to the many who support the Division through participating Technical Committees, presenting at and attending symposia, and publishing and reviewing technical papers.

Yong Zhu, 2018-2019
Chair, ASME Materials Division

Materials Division Award Lectures/Reception (Tuesday, November 12)

Sia Nemat-Nasser Early Career Award – 4:00-4:30 pm, Room 151G, 1st level, Convention Center

Nadai Medal – 4:30-5:15 pm, same room

Materials Division Reception (FREE and OPEN to all) – 5:30-7:00pm, same room

Track 10 Plenary Talks

Zhigang Suo, Harvard University – Tuesday, Nov. 12th, 9:45 – 10:30 am, Room 255F, Convention Center

Irene Beyerlein, UCSB – Wednesday, Nov. 13th, 9:45 – 10:30 am, Room 155F, Convention Center

MD Technical Committee and Executive Committee Meetings

MD General Meeting (OPEN to all)

11/12/2019, 11:00 AM – 12:30 PM, Convention Center 151AB

MD Executive Committee Meeting (CLOSED)

11/12/2019, 12:30 PM – 2:30 PM, Convention Center 151AB

AMD-MD Joint Committee on Constitutive Equations

11/12/2019, 9:00 AM – 10:00 AM, Marriott Salon A, 1st floor

MD Composites and Heterogeneous Materials Technical Committee

11/11/2019, 4:30 PM – 5:30 PM, Marriott Deer Valley I, 1st floor

MD Design of Engineering Materials Technical Committee

11/11/2019, 12:00 PM – 1:00 PM, Marriott Deer Valley I, 1st floor

MD Electronic Materials Technical Committee

11/11/2019, 4:30 PM – 5:30 PM, Marriott Deer Valley II, 1st floor

MD Materials Processing Technical Committee

11/11/2019, 4:30 PM – 5:30 PM, Marriott Deer Valley III, 1st floor

MD Multi-functional Materials Technical Committee Meeting

11/11/2019, 5:00 PM – 6:00 PM, Marriott Salon A, 1st floor

MD Nanomaterials for Energy Technical Committee

11/11/2019, 9:00 AM – 10:00 AM, Marriott Deer Valley I, 1st floor

MD Nanomaterials for Medicine and Biology Technical Committee

11/11/2019, 10:00 AM – 11:00 AM, Marriott Deer Valley I, 1st floor

2019 Awards

Nadai Medalist: The **Nadai Medal** is awarded in recognition of significant contributions and outstanding achievements which broaden the field of materials engineering.

The 2019 Nadai Medalist is **Ellen M. Arruda**, Tim Manganello/Borg Warner Department Chair of Mechanical Engineering, and the Maria Comninou Collegiate Professor of Mechanical Engineering at the University of Michigan (MI, USA), *for her pioneering and impactful research in polymer and tissue mechanics.*



Nadai Medal Lecture: Obtaining the Mechanical Properties of Soft Tissues – Challenges and Opportunities

Tuesday (11/12), 4:30-5:15PM, Room 151G, Convention Center

Characterizing the mechanical properties of the soft tissues of the knee has been a major focus of her lab for the past several years. Obtaining the mechanical properties of soft tissues is challenging for a number of reasons, the first of which is that they are very soft, and direct gripping is fraught with problems. They are also anisotropic, therefore testing in multiple directions and deformation states is typically required. In her talk she shows how geometric effects, heterogeneous deformation, and experimental uncertainty have manifested as subject-to-subject variability in the tensile response of the anterior cruciate ligament (ACL). She also demonstrates via computational simulations that uncertainties in fully characterizing the anisotropic response of the ACL leads to vastly different joint kinematics and tissue level strain predictions. She also discusses the advent of full-field methods and the tremendous opportunity they afford to overcome challenges in characterization of the non-linear, anisotropic mechanical properties of soft tissues.

Sia Nemat-Nasser Awardee: The Sia Nemat-Nasser Award is given to a researcher within 10 years of completing the terminal degree, working in experimental, computational, or theoretical mechanics and materials, with an emphasis on under-represented groups.

The 2019 Sia Nemat-Nasser Awardee is **Sinan Keten**, June and Donald Brewer Professor and Associate Professor of Mechanical Engineering and Civil Engineering at Northwestern University (IL, USA), *for his contributions to the development of atomistic and*



multi-scale modeling methods that have provided insight into how nanoconfinement and interfacial phenomena influence the mechanical behavior of polymer thin films, cellulose nanocomposites, and biomolecular materials.

Sia Nemat-Nasser Award Lecture: Hierarchical Design of Nanoparticle Network Materials

Tuesday (11/12), 4:00-4:30PM, Room 151G, Convention Center

Dr. Keten's lecture provides an overview of the state of the art in the bottom-up analysis of nanoparticle assemblies, touching upon new advances in interface design enabled by molecular and multi-scale simulations, machine learning tools, as well as bioinspiration. Dr. Keten also discusses the outlook on dynamic interfaces in nanocomposites, specifically examining how basic allosteric principles of catch bonds in proteins could be reduced to simple mechanical models to create nanoparticle linkages with counterintuitive force-dependent kinetics.

Materials Division Plenary Lectures at IMECE 2019

In accordance with the current conference format, the Materials Division has organized two plenary lectures during IMECE 2019. The plenary lectures feature two of the foremost experts in mechanics and materials and provide the state-of-the-art in the current, new and emerging aspect of materials research.

Plenary Talk I: Integrated Soft Materials

Zhigang Suo, Allen E. and Marilyn M. Puckett Professor of Mechanics and Materials, Harvard University

Tuesday (11/12), 9:45-10:30AM, Room 255F, Convention Center

Soft materials — tissues, elastomers, hydrogels, and ionogels— are under intense development for immediate and far-reaching applications, including tissue regeneration, synthetic biology, drug delivery, soft robots, ionotronics, bioelectronics, skin-attached and implanted devices, active textiles, as well as wearable and washable devices. Nearly all applications require the integration of dissimilar soft materials. This talk describes several recent examples of integrated soft materials that achieve unusual functions. Also highlighted are fundamental challenges to the mechanics and chemistry of materials, such as adhesion, fatigue, and seal.



Plenary Talk II: Material and Microstructural Features that Prompt Sub-Crystalline Localization in Polycrystalline High-Performance Alloys

Irene Beyerlein, Professor of Mechanical Engineering, University of California at Santa Barbara

Wednesday (11/13), 9:45-10:30AM, Room 155F, Convention Center

Improved prediction of the behavior of materials under the complex loading conditions encountered in structural components is critical to ensure reliable, long-term performance and to guide the design of new materials along high controlled processing paths. However, a major challenge for structural materials is the strong dependence of the intrinsic plastic deformation processes on material structure. Using a combination of in-situ deformation DIC and synchrotron measurements, 3D microstructural characterization, and 3D crystal plasticity based computational modeling, we investigate the micromechanical and microstructural factors leading to strain localization and subsequent slip band initiation. The analysis focuses on the coupled role of elastic anisotropy, grain neighborhoods, and grain shape and size in determining the location of the exceptionally preferred points of high elastic strain concentration and localized slip, when the applied strain is under but near the macroscopic elastic-plastic transition.



Materials Division Track at IMECE 2019

The Division Track Program, shown below, is organized by **Philippe Geubelle** (Organizer) and **Min Zhou** (Co-Organizer). Some Technical Committees have collaborated with the organizers from other Divisions to minimize replication of topics and maximize attendance. There are 22 symposia sponsored by the Division in Track 10: Advanced Materials: Design, Processing, Characterization and Applications, with 217 presentations/papers.

We are grateful to the considerable dedication of the organizers of the symposia sponsored by the Division, in Track 10 and other tracks. Track 10 symposia and their organizers are listed below:

Track 10: Advanced Materials: Design, Processing

10-1 In-Situ Techniques in Experimental Mechanics

Dr. Ryan Berke
Topic Organizer
Utah State University
Logan, UT, United States

Mr. Leslie Lamberson
Topic Co-Organizer
Drexel University
Philadelphia, PA, United States

Dr. Owen Kingstedt
Topic Co-Organizer
University of Utah
Salt Lake City, UT, United States

Mr. Scott Mao
Topic Co-Organizer
University of Pittsburgh
Pittsburgh, PA, United States

10-2 Multiscale Modeling for Materials Design

Dr. Sara Adibi
Topic Organizer
Center for Advanced Vehicular
Systems
Starkville, MS, United States

Mark Horstemeyer
Topic Co-Organizer
Mississippi State Univ
Starkville, MS, United States

Prof. Mohsen Asle Zaeem
Topic Co-Organizer
Colorado School of Mines
Golden, CO, United States

10-4 Mechanical Metamaterials

Prof. Eduard Karpov

Topic Co-Organizer
University of Illinois at Chicago
Chicago, IL, United States

Mr. Lifeng Wang

Topic Co-Organizer
Stony Brook University
Stony Brook, NY, United States

Prof. Jie Yin

Topic Co-Organizer
North Carolina State University
Raleigh, NC, United States

Mr. Yanning Li

Topic Co-Organizer
University of New Hampshire
Durham, NH, United States

Prof. Sung Hoon Kang

Topic Co-Organizer
Johns Hopkins University
Baltimore, MD, United States

Prof. Jaehyung Ju

Topic Co-Organizer
Shanghai Jiao Tong University
Shanghai, China

Prof. Jordan R. Raney

Topic Co-Organizer
University of Pennsylvania
Philadelphia, PA, United States

Mr. Jongmin Shim

Topic Co-Organizer
University At Buffalo
Buffalo, NY, United States

10-5 Multifunctional and Micro/Nano-structured Materials: Modeling and Characterization

Prof. Xin-Lin Gao

Topic Organizer
Southern Methodist University
Dallas, TX, United States

10-9 Modeling, Simulation, and Design of Multifunctional Materials

Dr. Ling Liu

Topic Organizer
Temple University
Philadelphia, PA, United States

Mr. Zhenhai Xia

Topic Co-Organizer
University of North Texas
Denton, TX, United States

10-10 Multifunctional Composite Materials and Structures

Sha Yin

Topic Organizer
Beihang University
Beijing, China

Dr. Li Ma

Topic Co-Organizer
Harbin Institute of Technology
Harbin, China

Prof. Jun Xu

Topic Co-Organizer
Beihang University
Beijing, Beijing, China

10-11 Multifunctional Nanomaterials

Mr. Wei Gao

Topic Organizer
University of Texas At San Antonio
San Antonio, TX, United States

Mr. Pei Dong

Topic Co-Organizer
George Mason University
Fairfax, VA, United States

10-12 Mechanics in Manufacturing of Multifunctional Materials and Structure

Prof. Baoxing Xu

Topic Organizer
University of Virginia
Charlottesville, VA, United States

Mr. Kevin Turner

Topic Co-Organizer
University of Pennsylvania
Philadelphia, PA, United States

Prof. Weiyi Lu

Topic Co-Organizer
Michigan State University
East Lansing, MI, United States

Mr. Xianqiao Wang

Topic Co-Organizer
University of Georgia
Athens, GA, United States

10-13 Bioinspired Materials, Structures and Applications

Dr. Seyed Allameh

Topic Organizer
Northern Kentucky Univ
Newport, KY, United States

Mr. Zhenhai Xia

Topic Co-Organizer
University of North Texas
Denton, TX, United States

Mr. Shihao Hu

Topic Co-Organizer
California State University, Los Angeles
Los Angeles, CA, United States

10-14 Soft Robotics and Soft Machines

Prof. Jie Yin

Topic Organizer
North Carolina State University
Raleigh, NC, United States

10-15 Lithium-ion battery safety under abusive conditions

Prof. Jun Xu

Topic Organizer
Beihang University
Beijing, Beijing, China

Mr. Elham Sahraei Esfahani

Topic Co-Organizer
Temple University
Philadelphia, PA, United States

Mr. Junfeng Xiao

Topic Co-Organizer
Huazhong Univ. of Science and
Technology
Hubei, China

10-17 Constitutive Modeling of the Mechanical Behavior and Performance of Electronic, Photonic, MEMS, and NEMS Materials, Assemblies, Packages, Modules, and Systems

Prof. Martin Ostoja-Starzewski

Topic Organizer
Univ Of Illinois Urbana
Urbana, IL, United States

Mr. Ephraim Suhir

Topic Co-Organizer
Bell Labs
Murray Hill, NJ, United States

Mr. Abhijit Dasgupta

Topic Co-Organizer
University of Maryland
College Park, MD, United States

10-19 Design of engineered materials and components for additive manufacturing

Dr. Andrew Gaynor

Topic Organizer
Weapons and Materials Research
Directorate
Aberdeen Proving Ground, MD,
United States

Prof. Natasha Vermaak

Topic Co-Organizer
Lehigh University
Bethlehem, PA, United States

10-20 Perspectives from Division Directors, Program Managers, and Center Leadership on Materials by Design Challenges

Prof. Natasha Vermaak

Topic Organizer
Lehigh University
Bethlehem, PA, United States

Dr. Andrew Gaynor

Topic Co-Organizer
Weapons and Materials Research
Directorate
Aberdeen Proving Ground, MD,
United States

10-23 Nanoengineered, Nano Modified, Hierarchical, Multi-Scale Materials and Structures

Dr. Ram Mohan

Topic Organizer
North Carolina A&T State
University
Greensboro, NC, United States

Dr. Wayne Hodo

Topic Co-Organizer
US Army - ERDC
Vicksburg, MS, United States

Prof. Mohsen Asle Zaeem

Topic Co-Organizer
Colorado School of Mines
Golden, CO, United States

Prof. Raghu Prakash

Topic Co-Organizer
Indian Institute of Technology
Madras
Chennai, India

10-24 Fracture and Damage: Nano- to Macro-Scale

Prof. Raghu Prakash
Topic Organizer
Indian Institute of Technology
Madras
Chennai, India

Dr. Ram Mohan
Topic Co-Organizer
North Carolina A&T State
University
Greensboro, NC, United States

Dr. Sridhar Santhanam
Topic Co-Organizer
Villanova University
Villanova, PA, United States

Dr. Vikram Jayaram
Topic Co-Organizer
Indian Institute of Science
Bangalore, India

10-25 Material Processing of Flexible Electronics, Sensors, and Devices

Prof. Aaron D. Mazzeo
Topic Organizer
Rutgers University
Piscataway, NJ, United States

Dr. Qiming Wang
Topic Co-Organizer
University of Southern California
Los Angeles, CA, United States

Prof. Jianliang Xiao
Topic Co-Organizer
University of Colorado Boulder
Boulder, CO, United States

Mr. Cunjiang Yu
Topic Co-Organizer
University of Houston
Houston, TX, United States

Mr. W. Hong Yeo
Topic Co-Organizer
Virginia Commonwealth University
Richmond, VA, United States

Prof. Yuris Dzenis
Topic Co-Organizer
Univ Of Nebraska
Lincoln, NE, United States

Dr. Nathan Crane
Topic Co-Organizer
Brigham Young University
Provo, UT, United States

Ms. Xueju Wang
Topic Co-Organizer
University of Missouri
Columbia, MO, United States

Prof. Changyong Cao
Topic Co-Organizer
Michigan State University
East Lansing, MI, United States

10-26 Materials Processing and Characterization

Prof. Raghu Prakash
Topic Organizer
Indian Institute of Technology
Madras
Chennai, India

Dr. Sridhar Santhanam
Topic Co-Organizer
Villanova University
Villanova, PA, United States

Dr. Ram Mohan
Topic Co-Organizer
North Carolina A&T State
University
Greensboro, NC, United States

10-27 Phase Transformations in Materials Processing

Dr. Mahmood Mamivand
Topic Organizer
Boise State University
Boise, ID, United States

Prof. Mohsen Asle Zaeem
Topic Co-Organizer
Colorado School of Mines
Golden, CO, United States

10-29 Recent Developments in Tribology

Patricia Iglesias
Topic Organizer
Rochester Institute of Technology
Rochester, NY, United States

Prof. M.D. Bermudez
Topic Co-Organizer
Universidad politecnica de
cartagena
Cartagena, Spain

10-30 Nanomaterials for Energy

Dr. Arunkumar Subramanian
Topic Organizer
University of Illinois Chicago
Chicago, IL, United States

Dr. Michael Pettes
Topic Co-Organizer
Los Alamos National Laboratory
Los Alamos, NM, United States

10-31 Plenary Sessions

Spotlights on Technical Committees of the Materials Division

We acknowledge the hard work and dedication of the officers and members of the Technical Committees of the Division. This section highlights the activities of two Technical Committees – newly formed Design of Engineering Materials TC and Materials Processing TC.

Design of Engineering Materials

The recently formed Design of Engineering Materials Technical Committee, DEM TC, is pleased to present a unique and exciting symposium at ASME-IMECE 2019: **Topic 10-20 “Perspectives from Division Directors, Program Managers, and Center Leadership on Materials by Design Challenges.”** ONR, NIST, AFOSR, NSF, ARO, and DARPA are represented along with several centers from LLNL, JHU, and UCI. This symposium will feature all invited talks to highlight the interdisciplinary integration necessary to address open challenges in engineering-materials-by-design. In addition, the role that this kind of integration has played in developing cutting edge technology will be shown through recent success stories and lessons learned. The 10-20

topic symposium will take place in four sessions Tuesday November 12th – Thursday November, 14th at the Calvin L. Rampton Salt Palace Convention Center. The full schedule on conference activities can be [found here](#) and more information on the technical committee can be [found here](#). **The topic symposium will end with a Question & Answer Panel Discussion with the invited speakers on Thursday November 14th, at 10:50am in room 255F!**

JOIN US at the 2019 ASME International Mechanical Engineering Congress and Exposition in Salt Lake City, Utah, November 11-14, 2019
<https://www.asme.org/events/imece>

Topic 10-20: Perspectives from Division Directors, Program Managers, and Center Leadership on Materials by Design Challenges

Representatives from ONR, NIST, NSF, AFOSR, DARPA, ARO, and several Materials by Design related Centers at LLNL, JHU and UCI to present. Topic culminates with a speaker panel discussion at 10:50am, Thursday November 14th.

<p>10-20-1 Tues. Nov. 12 10:45-12:30 Room: 251D</p> <p>J. Christodoulou ONR</p> <p>10:45-11:27</p> <p>M. VanLandingham NIST</p> <p>11:27-12:09</p> <p>E. Runnerstrom ARO</p> <p>12:09-12:30</p>	<p>10-20-2 Tues. Nov. 12 14:00-15:45 Room: 251D</p> <p>S. Qidwai NSF</p> <p>14:00-14:35</p> <p>J. Vandenbrande DARPA</p> <p>14:35-15:10</p> <p>J. Tiley AFOSR</p> <p>15:10-15:45</p>	<p>10-20-3 Wed. Nov. 13 16:00-17:45 Room: 251D</p> <p>D. Tortorelli CDO, LLNL</p> <p>16:00-16:35</p> <p>S. Ghosh CISMMS, JHU</p> <p>16:35-17:10</p> <p>L. Valdevit IDMI, UCI</p> <p>17:10-17:45</p>	<p>10-20-4 Thur. Nov. 14 10:15-12:00 Room: 255F</p> <p>K.T. Ramesh HEMI, JHU</p> <p>10:15-10:50</p> <p style="text-align: center;">Speaker Panel Discussion</p> <p style="text-align: center;">11/14/19 10:50am – 12pm</p>
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More on DEM TC:
<https://tinyurl.com/yxqsqykw>

Organized by:
 Dr. Natasha Vermaak (Lehigh University)
 Dr. Andrew T. Gaynor (U.S. Army Research Laboratory)

Sponsored by ASME Materials Division & The Design of Engineering Materials Technical Committee (DEM TC)

In total, the DEM TC organized, sponsored, or co-sponsored four topics:

Topic 10-20: [*Perspectives from Division Directors, Program Managers, and Center Leadership on Materials by Design Challenges*](#). Organized by Dr. N. Vermaak and Dr. A. Gaynor. Sessions 10-20-1 through 10-20-4 on Nov. 12 – 14th.

Topic 10-19: [*Design of Engineered Materials and Components for Additive Manufacturing*](#). Organized by Dr. A. Gaynor and Dr. N. Vermaak. Sessions 10-19-1 and 10-19-2 on Thurs. Nov. 14th 2-5:45pm.

Topic 10-2: [*Multiscale Modeling for Materials Design*](#), Organized by Dr. S. Adibi, Dr. M. Horstemeyer, Dr. M. Zaeem. Sessions 10-2-1 and 10-2-2 Thurs. Nov. 14th 2-5:45pm

Topic 2-2: [*Conference-Wide Symposium on Additive Manufacturing*](#), Organized by Dr. M. Tehrani, Dr. N. Crane, Dr. S. Thompson, Dr. A. Adnan, and Dr. J. Snyder. Sessions 2-2-1 through 2-2-8 on Nov. 12th – 13th.

The mission of DEM TC is to further the development of a sustainable interdisciplinary community dedicated to understand materials design problems. The scope of the DEM TC is to serve as a platform for facilitating collaborations and disseminating information advancing materials by design approaches, algorithms, and applications. If you would like to get involved with the DEM TC, please contact the DEM TC Vice Chair, [Dr. Andy Gaynor](#).

Note also that **the DEM TC meeting** (open to all) will be held **Monday Nov. 11th, 2019 at the Marriott Hotel (Room: Deer Valley 1, 1st floor) from 12-1pm.**

<https://event.asme.org/IMECE/Program/Committee-Meetings>

Materials Processing

ASME Materials Division materials processing technical committee (MD-MPTC) has actively and successfully pursued organization of events and symposia for the exchange of technical information and findings related to various aspects of materials processing including new directions in nano-material processing, multi-scale, hierarchical materials, bio-materials, additively manufactured materials etc., that are of current research, that has technical and applications of interest to the community and ASME at large. The MD-MPTC has either sponsored or co-sponsored symposia in key emerging areas at the 2018 IMECE 2018 meeting.

The MD-MPTC plans to continue organizing future symposia and forums, workshops and other technical exchange activities at IMECE and other conferences for 2020 and beyond, in several emerging materials processing technology areas of interest and relevance to the field, as well as in the emerging areas of nano-manufacturing, nano-engineered materials for energy applications, hierarchical, multi-scale, bio-materials and additive manufacturing processing. The MD-MPTC is sponsoring symposia in the following areas at IMECE 2019 in Salt Lake City, UT.

- Phase Transformations in Materials Processing
- Fracture and Damage: Nano- to macro- scale
- Materials Processing and Characterization
- Recent Developments in Tribology
- Nano-engineered, Hierarchical, Multi-Scale Materials and Structures
- Material Processing of Flexible Electronics, Sensors, and Devices.

Members of the MD-MPTC have been active in various activities at ASME. This includes serving in the awards committees for the Materials Division. Future plans to organize technical podcasts, webinars; assessment based courses, workshop series; web based technical modules, etc., by working closely with ASME organization. Such potentials will be discussed during IMECE 2019 technical committee meeting.

MD-MPTC meetings are held every year during IMECE. The materials processing committee is committed to supporting symposia and forum for technical exchanges in emerging materials processing technology areas that require interdisciplinary focus and interactions, and encourage members of materials and engineering community and other ASME divisions to contact the technical committee chair with proposals for symposia and other technical activities. Please contact the current chair (**Raghu V Prakash**, raghuprakash@iitm.ac.in) if you would like to participate in ongoing activities or initiate new activities in the technical areas of relevance to materials processing, additive manufacturing, innovative material developments, processing, characterization, modeling, materials processing and applications for energy, nanotechnology and infrastructure applications, interdisciplinary technology areas, as well as industrial practices.

Spotlights on Journals

ASME Journal of Engineering Materials and Technology (JEMT)

Mohammed A. Zikry, Zan Prevost Smith Distinguished Professor, North Carolina State University (USA), serves as the Editor-in-Chief of the **ASME Journal of Engineering Materials and Technology (JEMT)**.



The scope of the journal covers a broad spectrum of issues regarding experimental, computational, and theoretical studies of mechanical properties of materials, as well as mechanics of materials issues in metals, polymers, ceramics, composites, biomaterials, and nanostructured materials. The journal's major objective is to continue to publish research of the highest quality and of lasting significance in areas related to engineering materials, mechanics of materials, and materials technology. The scope is broad, since it encompasses interdisciplinary research that spans fundamental knowledge, which is related to mechanics of materials, materials science, mathematics, and applied physics, and technological applications, which are related to engineering innovations and applications. The journal will include research articles, technical notes, book reviews, and special issues related to emerging areas. The acceptance rate for the journal is 5% and demand for the journal remains strong, with issues already confirmed till the end of 2020. If there are suggestions for special issues or editorials, please contact me. As you can also see from our list below for Associate Editors, we have a diverse and internationally recognized board from leading global researchers, as we extend the reach of JEMT to a worldwide audience.

The JEMT website can be found at:

<http://materialstechnology.asmedigitalcollection.asme.org/journal.aspx>

Editorial Board of ASME Journal of Engineering Materials and Technology (as of 12/2018)

EDITOR

Mohammed Zikry, Ph.D.

Dept. of Mechanical and Aerospace Engineering
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