Materials Division 2026 News
THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

MESSAGE FROM THE CHAIR

Greetings to the Materials Division community!



Prof. Curt A. Bronkhorst, Chair
(2025-2026)
ASME Materials Division
University of Wisconsin - Madison

It has been an honor to serve as Chair of the Executive Committee (EC) of the ASME Materials Division, I would like to thank my fellow EC members for their dedication and hard work over the past year. Prof. **Huck Beng Chew** (Vice Chair, University of Illinois Urbana-Champaign) led the Division Awards Committee; Prof. **Erdogan Madenci** (Program Chair, University of Arizona) and Prof. **Nanshu Lu** (Program Vice Chair, University of Texas at Austin) organized the MD Track at **IMECE 2026**; Prof. **Jianliang Xiao** (Secretary, University of Colorado) maintained documentation and Prof. **Haleh Ardebili** (Member-at-Large, University of Houston) wrote and coordinated this newsletter. I would especially like to acknowledge the leaders of our MD Technical Committees for their dedicated service and their contributions to both the Division and the broader materials community. It has been an honor and privilege to work alongside such a distinguished and dedicated group of researchers who were willing to volunteer their time in service of the Materials Division. I look forward to the many great things that you will all accomplish in the future.

Highlights of 2025–2026 Activities

• IMECE 2026

The ASME International Mechanical Engineering Congress and Exposition (IMECE) remains the central forum for Materials Division activities and a key gathering for our community. Through its Technical Committees, the Division continues to play an active role in organizing symposia and plenary sessions each year. For IMECE 2026, the Division again organized Track 4: “Advanced Materials: Design, Processing, Characterization, and Applications.” In total, MD sponsored or co-sponsored 20 symposia. The list of Track 4 symposia and organizers is included in this newsletter.

• Plenary Lectures at IMECE 2026

We are excited to host two MD-sponsored plenary lectures in Track 4:

- **Dr. Stewart Silling**, *Lehigh University*
- **Dr. Jie Yin**, *North Carolina State University*

The titles and abstracts of these plenary talks are included in this newsletter. Please join us for these excellent sessions.

• Division and Society Awards

Each year, the Materials Division recognizes outstanding achievements through its Division- and Society-level awards. This year's recipients are:

- **Nadai Medal:** Prof. *Samuel Forest*, Mines Paris PSL University
- **Materials Division Centennial Mid-Career Award:** Prof. *Cunjiang Yu*, University of Illinois Urbana-Champaign
- **Sia Nemat-Nasser Early Career Award:** Prof. *Anna Tarakanova*, University of Connecticut
- **Orr Family Early Career Award:** Prof. *Shaoting Lin*, University of Wisconsin - Madison

These and other honorees will be recognized during the **MD Awards Session** on **Wednesday, November 11, 2:00–5:00 PM**.

• Journals

The Materials Division proudly sponsors two ASME journals: the **Journal of Engineering Materials and Technology (JEMT)** and the **Journal of Engineering and Science in Medical Diagnostics and Therapy (JESMDT)**. We encourage all MD members to submit their high-quality research to these journals.

JEMT, led by Editor-in-Chief **Dr. Abigail Hunter** (Los Alamos National Laboratory), remains a premier venue for experimental, computational, and theoretical studies in the mechanics of materials. It advances understanding of metals, polymers, ceramics, composites, biomaterials, and nanostructured systems across multiple scales.

JESMDT, led by Editor-in-Chief **Prof. Linxia Gu** (Florida Institute of Technology), continues to bridge the gap between engineering and clinical practice, facilitating the translation of engineering innovations into biomedical applications. We are pleased to announce this year's **JESMDT best paper award** which goes to *Mariana Ferreira, Violeta Carvalho, Diana Pinho, Rui Lima, Senhorinha Teixeira, and Armando A. Soares*. We congratulate each of these authors for their fine work and thank them for their submission to JESMDT.

• Technical Committees

The Division's eight **Technical Committees** play a vital role in organizing timely and high-impact mini-symposia within Track 4 at IMECE 2025. The list of Technical Committees and their leaders is provided in this newsletter. I encourage all members to get involved and contribute to the committees aligned with their research interests.

Acknowledgments

I would also like to express my sincere appreciation to the ASME staff members whose support has been instrumental to the success of the Materials Division. Special thanks go to **April Tone**, Senior Manager of Technical & Engineering Communities (TEC) Operations at ASME and our primary liaison with ASME.

Leadership Transition

On Dec. 15, 2026, **Prof. Huck Beng Chew** will assume the role of Chair of the MD Executive Committee and **Dr. Adrian Sabau** from Oak Ridge National Laboratory will join the Executive Committee in the Member-at-Large capacity. The Division will continue to thrive under this new leadership along with the dedication of our EC members.

Please enjoy the many accomplishments of our community highlighted in this newsletter, and I look forward to seeing you all soon in Vancouver!

Sincerely,

Curt A. Bronkhorst
Chair, ASME Materials Division Executive Committee, 2025-2026
University of Wisconsin - Madison



2026 Materials Division Awards Winners



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

The 2026 Nadai Medalist is **Prof. Samuel Forest**, Mines Paris PSL University, for his pioneering contributions to the mechanics of generalized continuous media, which bridges advanced thermodynamics with materials physics to analyze plasticity, strain localization, and fracture behavior at microscopic and multiscale levels.

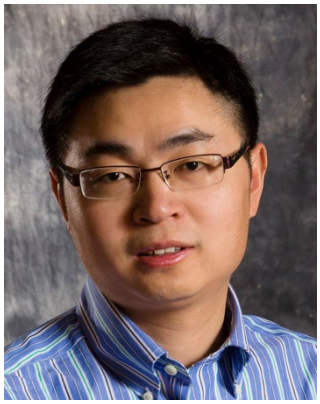
Nadai Medal Lecture: *Plastic strain localization in metallic single and polycrystals and its impact on fatigue cracking*
Wednesday, Nov. 11, 2026, 3:15 – 4:00 PM



The Sia Nemat-Nasser Early Career Award recognizes early-career researchers within 10 years of earning their Ph.D. for innovative work in mechanics and materials, with emphasis on under-represented groups.

The 2026 Awardee is **Prof. Anna Tarakanova**, University of Connecticut, for her trailblazing contributions to establishing quantitative links between molecular structure, statistical mechanics, and macroscopic material behavior in natural and nature-inspired materials, and the development of computational frameworks that reveal how extracellular matrix molecules govern tissue elasticity, durability, aging, and failure.

Sia Nemat-Nasser Early Career Award Lecture: *Multiscale Mechanics of Biological Materials: From Molecular Mechanisms to Tissue Function*
Wednesday, Nov. 11, 2026, 2:05 – 2:25 PM



The Division Centennial Mid-Career Award honors researchers 10–20 years post-degree who have made impactful contributions at the interface of materials and mechanics.

The 2026 Awardee is **Prof. Cunjiang Yu**, University of Illinois Urbana-Champaign, for his groundbreaking contribitions to the fundamentals and translational applications of soft electronics and bioelectronics.

Centennial Mid-Career Award Lecture: *Rubbery Electronics*
Wednesday, Nov. 11, 2026, 2:25 – 2:55 PM



The Materials Division Orr Family Early Career Award recognizes outstanding research within seven years of the terminal degree in experimental, computational, or theoretical fatigue, fracture, or creep.

The 2026 Awardee is **Prof. Shaoting Lin**, University of Wisconsin - Madison, for his outstanding contributions to the synthesis-structure-property relationship of soft materials through the integration of solid mechanics, polymer physics, and advanced manufacturing.

Orr Early Career Award Lecture: *Fracture and Fatigue of Entangled Networks*
Wednesday, Nov. 11, 2026, 2:55 – 3:15 PM.

Materials Division Sponsored Plenary Lectures at IMECE 2026



Plenary Talk I: Modeling Damage and Fracture with Peridynamics

Stewart Silling, *Lehigh University*
Monday, November 9, 2026, 8:00 – 8:45 AM

Over its 26-year history, the peridynamic theory of solid mechanics has provided capabilities for modeling phenomena that are challenging when treated using standard methods. This talk provides a general background on the theory, focusing on its unique way of predicting material failure due to the progression of damage and fracture. Peridynamics is a nonlocal theory that does not require the differentiability of the displacement field, thus providing an opportunity to model singularities such as cracks within its basic field equations, thereby minimizing the need for special techniques. This generality allows a seamless transition from a continuous material under loading, to continuous damage, to defect nucleation, to crack initiation, to macroscopic failure. Damage evolution is embedded in a thermodynamic framework that ensures consistency between the mechanical response and the First and Second Laws expressed in nonlocal form. It is shown that the peridynamic equations are reduced to those of classical solid mechanics in the limit of a large length scale. But processes in the model occurring at smaller length scales can behave differently, allowing more realistic modeling of deformation and diffusive transport at the microscale and mesoscale. The main features of the theory are described in this talk, and its capabilities are demonstrated through examples drawn from diverse applications in industry. The nature, appropriateness, and consequences of nonlocality in a mechanical model are discussed.

Plenary Talk II: Physically Intelligent Soft Robotics



Jie Yin, *North Carolina State University*
Wednesday, Nov. 11, 2026, 8:00 – 8:45 AM

Different from neuron-based computational intelligence through the brain, physical intelligence leverages structural designs and smart materials to physically encode sensing, actuation, control, adaption, and decision-making into the body of an agent. The stimuli-responsive body materials can enable autonomous sensory, actuation, powering, and other physical intelligence functions. The structural designs of soft body can simplify the required actuation for deformation and motion, as well as enable real-time feedback control-free locomotion and self-adaption. I will discuss our recent work in embodying mechanical intelligence of structural designs and/or materials intelligence of soft active materials in soft robotics, for achieving high performance in manipulation, locomotion, autonomy, and intelligence with reduced control complexity. First, I will talk about utilizing the ancient paper cutting art of kirigami for programmable shape shifting and its applications in noninvasive and delicate grasping and aerial manipulation. Then, I will discuss how to leverage snapping instabilities for fast, efficient, and maneuverable soft robotic swimmers under minimal actuation and simplified control. Finally, I will discuss examples of integrating structural designs with soft active materials for achieving autonomy and intelligence in soft robots and conclude the talk with outlook of physical-intelligence-embodied robotics.

Track 4 at IMECE 2026 – Advanced Materials: Design, Processing, Characterization and Applications

The Materials Division Track Program at IMECE 2026 is organized by **Prof. Erdogan Madenci** (Track Chair) and **Prof. Nanshu Lu** (Track Co-Chair). There are 20 technical sessions sponsored by the Materials Division. We are very grateful for the considerable dedication of the organizers of the symposia, who are recognized below:

MONDAY, Nov. 9

04-01-01: Materials Processing Advances in Additive and Hybrid Manufacturing
8:50 AM – 10:35 AM
Session Chair: Ahsan Mian

04-03-01: Flexible, Wearable & Smart Sensor Materials
8:50 AM – 10:35 AM
Session Chairs: Xueju (Sophie) Wang, Shanshan Yao.

04-08-01: Process Optimization & Performance in Advanced Manufacturing
8:50 AM – 10:35 AM

04-13-01: Bioinspired Materials, Structures and Applications
8:50 AM – 10:35 AM
Session Chair: Jay Sim.

04-02-02: Sustainable Polymers, Coatings & Surface Functionality
1:20 PM – 3:05 PM
Session Chairs: Assimina Pelegri, Raghu Prakash.

04-02-04: Composite Characterization & Mechanical Performance
1:20 PM – 3:05 PM
Session Chairs: Ram V Mohan, Karen Chang Yan.

04-09-01: AI-Driven Materials Modeling & Inverse Design
1:20 PM – 3:05 PM

04-01-02: Multifunctional Nanocomposites & Thermal Materials
3:25 PM – 5:10 PM

04-02-01: Thermal Protection & High-Temperature Materials
3:25 PM – 5:10 PM
Session Chairs: Raghu Prakash, Ram V Mohan.

04-19-01: Mechanical Metamaterials
3:25 PM – 5:10 PM
Session Chairs: Raghu Prakash, Ram V Mohan.

04-22-01: Engineered Materials, Lattices & Acoustic Metamaterials
3:25 PM – 5:10 PM

TUESDAY, Nov. 10

04-02-03: Metals Processing, Joining & Interfacial Integrity
2:15 AM – 4:00 AM
Session Chairs: Anil Saigal, Sridhar Santhanam.

04-07-01: High-Strain-Rate, Fracture & Impact Mechanics
2:15 PM – 4:00 PM
Session Chairs: William Lawrimore, Deborah Luckett.

04-10-01: Multifunctional Composite/Safety Materials
4:00 PM – 5:30 PM
Session Chair: Bo Li.

WEDNESDAY, Nov. 11

04-04-01: Nanoengineered, Nano Modified, Hierarchical, Multi-Scale Materials and Structures
4:05 PM – 5:50 PM
Session Chairs: Ram V Mohan, Robert Fleming.

Materials Division Technical Committee Meeting

Materials Division General Meeting (open meeting)
Tuesday, Nov 10, 5:30pm-7:00 pm
Location: Room 118/Location CC

Materials Division Executive Committee Meeting (closed meeting)
Tuesday, Nov 10, 7:00pm-8:30 pm
Location: Room 118/Location CC

Additional Division Events

Materials Division Awards Symposium
Wednesday, Nov. 11, 2:00 – 5:00 PM
Location: Room 224/Location CC

Spotlights on Journals

ASME Journal of Engineering Materials and Technology (JEMT)



Dr. Abigail Hunter, Deputy Director for the Institute of Materials Science, Los Alamos National Laboratory (LANL),

Editor-in-Chief of the **ASME Journal of Engineering Materials and Technology (JEMT**).

The Journal of Engineering Materials and Technology (JEMT) is a global publishing forum that serves the international and multidisciplinary solid mechanics and materials science community. The journal was established in 1973, has been associated with the Materials Division, and remains one of the oldest science and engineering journals focused on mechanics of materials and materials science.

The journal aims to disseminate novel research work that advances the fields of engineering materials, mechanics of materials, and materials technology. JEMT addresses a broad spectrum of issues focused on interrelated experimental, computational, and theoretical studies on the mechanics of materials. It also promotes a new fundamental understanding of the behavior of metals, polymers, ceramics, composites, biomaterials, and nanostructured materials at physical scales ranging from the atomistic to the macro. The journal's major objective is to continue

publishing research of the highest quality and of lasting significance in these areas. The scope is broad, encompassing interdisciplinary research that spans fundamental knowledge—related to mechanics of materials, materials science, mathematics, and applied physics—as well as technological applications that support engineering innovations. The journal includes research articles, technical briefs, reviews, and special issues related to emerging areas. Our current impact factor is 2.5. If there are suggestions for special issues, review articles, or editorials, please feel free to contact me.

It is my honor to serve the research community and to work to advance new fundamental scientific and engineering knowledge. I look forward to continuing to strengthen the journal's reputation through the publication of groundbreaking, original research on engineering materials and technology. We have a diverse and internationally recognized board of leading researchers from around the world, extending the reach and impact of JEMT to a worldwide audience. The journal is always seeking new Associate Editors who can contribute to its mission and aims.

The JEMT website can be found at:
https://asme.onlinelibrary.wiley.com/journal/15288889

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ASME Journal of Engineering and Science in Medical Diagnostics and Therapy (JESMDT)



Prof. Linxia Gu, Professor of Biomechanical Engineering and Science, Florida Institute of Technology

Editor-in-Chief of the **ASME Journal of Engineering and Science in Medical Diagnostics and Therapy (JESMDT)**.

The ASME Journal of Engineering and Science in Medical Diagnostics and Therapy is the dedicated publication for lab-proven biomedical and biotechnology research at the intersection of engineering, science, and clinical medicine. Focused on translational research that moves findings from bench to bedside, it covers diagnostic imaging, therapeutic techniques, biomaterials, drug delivery, micro and nanotechnology, and the application of mechanical and other engineering disciplines to clinical challenges.
The JESMDT website can be found at:
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Committees and Leadership

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Vice Chair: Prof. Huck Beng Chew, University of Illinois at Urbana–Champaign, USA
Track Chair: Prof. Erdogan Madenci, University of Arizona, USA
Track Co-Chair: Prof. Nanshu Lu, University of Texas at Austin, USA
Secretary: Prof. Jianliang Xiao, University of Colorado Boulder, USA
Member-at-Large: Prof. Haleh Ardebili, University of Houston, USA
Past Chair: Prof. Hanqing Jiang, Westlake University, China

Technical Committees and their Officers of 2025–2026

***AMD/MD Joint Committee on Constitutive Equations**
Chair: Andrew Bowman - Andrew.L.Bowman@usace.army.mil
Vice-Chair: Sadie Beck - scbeck@ua.edu
Secretary: Thomas Hannah - thannah@lanl.gov

***Composites and Heterogeneous Materials**
Chair: Jaehyung “Joshua” Ju, Shanghai Jiao Tong University, jaehyung.ju@sjtu.edu.cn
Vice Chair: Xueju Wang, University of Connecticut, xueju.wang@uconn.edu
Secretary: Grace Gu, University of California, Berkeley, ggu@berkeley.edu

***Design of Engineering Materials**
Chair: Sara Adibi, San Diego State University, sadibi@sdsu.edu
Co-Chair: Alireza Amirkhizi, Alireza_Amirkhizi@uml.edu

***Electronic Materials**
Chair: Xueju Wang, University of Connecticut, xueju.wang@uconn.edu
Vice Chair: Shanshan Yao, shanshan.yao@stonybrook.edu
Changyong (Chase) Cao, Case Western Reserve University, ccao@case.edu
Secretary: Kaiyan Qiu, Washington State University, kaiyan.qiu@wsu.edu

***Materials Processing**
Chair: Adrian Sabau, Oak Ridge National Laboratory, sabaua@ornl.gov
Vice Chair: Xueju (Sophie) Wang, University of Connecticut, xueju.wang@uconn.edu

***Multifunctional Materials**
Chair: Elham Sahraei, Temple University, elham.sahraei@temple.edu
Vice Chair: Azadeh Sheidaei, Iowa State University, sheidaei@iastate.edu
Secretary: Marian Bulla, bulla@altair.com

***Materials for Biomimetic and Medical Applications**
Chair: Jinhua Li, The Ohio State University, li.11017@osu.edu
Vice Chair: Renee Zhao, Stanford University, rrzhao@stanford.edu

***Advanced Materials for Energy**
Chair: Yingchao Yang, yingchao.yang@missouri.edu
Vice Chair: Huanyu (Larry) Cheng, Huanyu.cheng@psu.edu
Secretary: Qing Tu, Texas A&M University, qing.tu@tamu.edu

Past Executive Committee Chairpersons of ASME Materials Division

Term ending	E.C. Chairperson	Term ending	E.C. Chairperson
1955	R. G. Sturm	1995	V. K. Stokes
1956	W. L. Fleischmann	1996	A. D. Freed
1957	J. O. Smith	1997	S. Suresh
1958	J. B. Rutherford	1998	S. Nemat-Nasser
1959	W. E. Trumpler	1999	T. Nicholas
1960	M. J. Manjoine	2000	B. N. Cox
1961	W. E. Cooper	2001	R. Raj
1962	L. W. Smith	2002	S. E. Cunningham
1963	H. T. Corten	2003	W. A. Curtin
1964	M. E. Shank	2004	D. C. Davis
1965	H. R. Voohees	2005	M. S. Dadkhah
1966	I. Finnie	2006	R. Wetherhold
1967	T. W. Eichelberger	2007	M. F. Horstemeyer
1968	G. M. Sinclair	2008	D. Pai
1969	A. Rubio	2009	D. Siginer
1970	R. M. Goldhoff	2010	A. J. Rajendran
1971	A. J. McEvily, Jr.	2011	M. Zikry
1972	J. H. Thompson	2012	V. Prakash
1973	C. H. Wells	2013	J. Chen
1974	I. LeMay	2014	K. Jacob
1975	D. K. Felbeck	2015	J. Wang
1976	S. Yukawa	2016	G. Z. Voyiadjis
1977	J. M. Kraft	2017	X. Chen
1978	E. Krempl	2018	V. La Saponara
1979	A. Blelloch	2019	Y. Zhu
1980	T. U. Marston	2020	T. Nakamura

1981	J. P. Gallagher	2021	P. Geubelle
1982	W. A. Van Der Sluys	2022	M. Zhou
1983	W. Owens	2023	H. Tippur
1984	C. Niemczewski	2024	C. Oskay
1985	J. E. Williams	2025	H. Jiang
1986	A. E. Carden		
1987	J. R. Whitehead		
1988	T. A. Auten		
1989	C. K. H. Dharan		
1990	R. M. Horn		
1991	C. W. Merten		
1992	A. A. Tseng		
1993	M. Taya		
1994	G.J. Weng		