Wenwu Xu, Ph.D.

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TMS RECORD
Service, Leadership and Contributions
2015 to 2027
Updated November 2026

37	5	11	9	7
TMS PRESENTATIONS	PROCEEDINGS PAPERS	SYMPOSIUM ORGANIZER ROLES, 5 AS LEAD	SESSIONS CHAIRED	TECHNICAL COMMITTEES

A member of TMS since 2015, Xu has grown from presenting his synchrotron and first-principles work as a postdoctoral researcher to shaping the society's technical program. He founded the Artificial Intelligence Applications in ICME symposium in 2025 and has led it every year since. He leads or co-leads four symposia at TMS 2027, and in 2027 he begins a term as the MPMD representative on the TMS Program Committee, which plans programming across all five technical divisions.

SOCIETY LEADERSHIP AND GOVERNANCE

2027–2030	**Program Committee, Division Representative** TMS Program Committee, representing the Materials Processing & Manufacturing Division (MPMD) Council; voting member of both bodies. Appointed by MPMD Chair Carelyn Campbell.
2025–present	**JOM Advisor** Process Technology & Modeling Committee. Proposes and shapes JOM special topics for the committee each editorial cycle.
2024–2025	**Organizing Committee** 8th World Congress on Integrated Computational Materials Engineering (ICME 2025), TMS Specialty Congress, Anaheim. Also abstract reviewer.
2026	**Candidate, Vice Chair** Chemistry & Physics of Materials Committee (election held Mar 2026).

TECHNICAL COMMITTEE MEMBERSHIP

2025–present	**Mechanical Behavior of Materials Committee** Structural Materials Division
2025–present	**Chemistry & Physics of Materials Committee** Functional Materials Division
2024–present	**Process Technology & Modeling Committee** MPMD and EPD
2024–present	**Computational Materials Science & Engineering Committee** MPMD; primary sponsor of AI-ICME
2022–present	**Integrated Computational Materials Engineering Committee** MPMD
2022–present	**Additive Manufacturing and Powder Materials Committees** MPMD
2015–present	**Professional Member** The Minerals, Metals & Materials Society (TMS)

SYMPOSIUM ORGANIZATION AND EDITORIAL SERVICE

TMS 2028	**Lead Organizer (planned)** Artificial Intelligence Applications in ICME (AI-ICME), CMSE Committee as primary sponsor; also co-organizer, Chemistry and Physics of Interfaces.
TMS 2027	**Lead Organizer** Artificial Intelligence Applications in Integrated Computational Materials Engineering (AI-ICME).
TMS 2027	**Lead Organizer, Proceedings Editor** Field-Assisted Material Processing and Solidification; sponsored by EPD, MPMD and four technical committees; 14 organizers; standalone proceedings volume.
TMS 2027	**Co-Organizer** Chemistry and Physics of Interfaces; Powder Materials Processing and Fundamental Understanding.
TMS 2026	**Lead Organizer** AI-ICME.
TMS 2026	**Lead Organizer** Chemistry and Physics of Interfaces.
TMS 2026	**Co-Organizer, Proceedings Co-Editor** Advancing the Frontier of Powder Materials Processing and Sintering: An MPMD/EPD Symposium in Honor of Eugene Olevsky.
2026	**Guest Editor** IMMI (Integrating Materials and Manufacturing Innovation) topical collection from the AI-ICME symposium.
TMS 2025	**Founder and Lead Organizer** AI-ICME, launched with co-organizers from PNNL, Purdue, LANL, GE Aerospace, University of Florida and University of Alabama.
TMS 2025	**Co-Organizer** Powder Materials Processing and Fundamental Understanding.
TMS 2024	**Co-Organizer** Powder Materials Processing and Fundamental Understanding.
TMS 2023	**Co-Organizer** Powder Materials Processing and Fundamental Understanding.

SESSION CHAIR

TMS 2026	AI-ICME: ICME Workflows, CALPHAD & Alloy/Materials Design (with V. Miller); AI-ICME Poster Session; Chemistry and Physics of Interfaces: Kinetics & Boundary Phenomena I (with D. Raabe); Chemistry, Thermodynamics & Solidification II (with S. Lippmann); Interfaces Poster Session; Olevsky Symposium: Field Assisted Sintering II (with V. Sglavo).
TMS 2025	AI-ICME: Computational Modeling and Simulation in Materials Engineering (with V. Miller).
TMS 2024	Powder Materials Processing and Fundamental Understanding: Tailoring Nano/Microstructure (with C. Castano Londono).
TMS 2023	Powder Materials Processing and Fundamental Understanding: Characterization and Analysis II (with N. Derimow).

PEER-REVIEWED TMS PROCEEDINGS PAPERS

Bold: Xu [#]: SDSU student in the Xu lab Underlined: presenting author

C1 **Xu WW**, Tzanakis I, Srirangam P, Terzi S, Mirihanage WU, Eskin DG, Mathiesen RH, Horsfield AP, Lee PD (2015). **In Situ Synchrotron Radiography of Ultrasound Cavitation in a Molten Al-10Cu Alloy.** *TMS2015 Supplemental Proceedings*, Wiley, pp. 61–66. doi:10.1002/9781119093466.ch9

C2 Polifrone K[#], Delaney C[#], Hasan MS[#], Bayat H[#], Foronda C[#], Olevsky E, **Xu W** (2024). **An Atomistic Modeling Study of Electric Field Effect on Sintering Mechanisms of Zirconia.** *TMS 2024 153rd Annual Meeting & Exhibition Supplemental Proceedings*, Springer, pp. 1819–1826. doi:10.1007/978-3-031-50349-8_157

C3 Hasan MS[#], Bayat H[#], Delaney C[#], Foronda C[#], **Xu W** (2024). **Hydrogen-Induced Transformation of Dislocation Core in Fe and Its Effect on Dislocation Mobility.** *TMS 2024 153rd Annual Meeting & Exhibition Supplemental Proceedings*, Springer, pp. 1000–1007. doi:10.1007/978-3-031-50349-8_86

C4 **Xu W**, Alfaro M[#], Jiang R, Soltero S[#], Burns J[#], Contreras A[#], Delaney C[#], Foronda C[#], Pavao M (2026). **Localized Grain Boundary Engineering via Thermal-Elastic Processing (TEP).** *TMS 2026 155th Annual Meeting & Exhibition Supplemental Proceedings*, Springer, pp. 763–774. doi:10.1007/978-3-032-13828-6_64

C5 **Xu W** (2027). **Bridging the Strain-Rate Gap in Copper Deformation with a Bidirectional Physics-Informed Neural Network.** *TMS 2027 Supplemental Proceedings*, Springer. Accepted Sep 2026, in press.

PRESENTATIONS AT TMS MEETINGS, BY YEAR

37 presentations at TMS Annual Meetings and TMS ICME World Congresses: 20 presented by Xu, 17 by his students and collaborators. **Bold**: Xu [#]: SDSU student Underlined: presenter

2015

TMS 2015 Annual Meeting, Orlando FL (Mar 15 to 19); 3rd World Congress on ICME, Colorado Springs CO (May 31 to Jun 4)

Joined TMS. Research associate, University of Manchester and Research Complex at Harwell, UK.

P1 TALK **In Situ Synchrotron Radiography of Ultrasound Cavitation in a Molten Al-10Cu Alloy.** **Xu W**, Tzanakis I, Tamayo J, Srirangam P, Mirihanage W, Terzi S, Guo E, Shuai S, Eskin D, Mathiesen R, Horsfield AP, Lee PD. *TMS 2015, Advances in Solidification of Metallic Alloys under External Fields. First TMS presentation.*

P2 POSTER **First-Principles Calculations of Mg/MgO Interfacial Free Energies.** **Xu W**, Horsfield AP, Wearing D, Lee PD. *TMS 2015, Computational Thermodynamics and Kinetics, Poster Session.*

P3 TALK **Multi-scale Modelling of Interfacial Energies on the Nanoscale: From Analytical to Quantum Mechanical.** **Xu W**, Horsfield AP, Lee PD. *ICME 2015, Integration of ICME Building Blocks: Multi-scale Modeling.*

2018

TMS 2018, 147th Annual Meeting, Phoenix AZ (Mar 11 to 15)

First TMS meeting as SDSU faculty.

P4 INVITED **Quantum Mechanical Simulations of MgO//Mg Interfacial Stability.** **Xu W**, Horsfield A, Lee P. *Computational Design and Simulation of Materials (CDSM 2018), held within TMS 2018.*

P5 TALK **Mechanical Properties of Nanocrystalline Aluminum: Atomistic Simulations and Experimental Verification.** **Xu W**, Song X, Dávila L. *Mechanical Behavior at the Nanoscale IV.*

2019

5th World Congress on ICME, Indianapolis IN (Jul 21 to 25)

P6 TALK **A New Bimodal Microstructure Design for Improving Metal Fatigue.** **Xu W**, Ramirez K[#], Lee R[#], Hasan S[#]. *ICME 2019, Process and Microstructure Linkage.*

2020

TMS 2020, 149th Annual Meeting, San Diego CA (Feb 23 to 27)

P7 POSTER **A Novel Bimodal Microstructure for Improved Fatigue Resistance.** **Xu W**, Ramirez K[#], Lee R[#], Hasan S[#]. *Mechanical Behavior at the Nanoscale V, Poster Session.*

P8 POSTER **Deformation Nanomechanics and Dislocation Quantification at Atomic Scale in Nanocrystalline Pure-Metal Magnesium.** Hasan MS[#], **Xu W**. *Deformation and Transitions at Grain Boundaries VII, Poster Session.*

2022

TMS 2022, 151st Annual Meeting, Anaheim CA (Feb 27 to Mar 3); 6th World Congress on ICME, Lake Tahoe NV (Apr 2022)

P9 TALK **Atomistic Modeling of the Effect of External Electric Field on Diffusivity and Flash Sintering of 8YSZ.** **Xu W**, Hasan MS[#], Olevsky E. *TMS 2022, Advances in Powder and Ceramic Materials Science.*

P10 TALK **Machine Learning Based Hierarchical Multi-scale Modeling of Mechanical Deformation for Metal-Matrix-Nanocomposites.** Hasan MS[#], **Xu W**. *TMS 2022, Frontiers of Materials Award Symposium.*

P11 POSTER **Effect of External Electric Field on Diffusivity and Flash Sintering of 8YSZ: A Molecular Dynamics Study.** **Xu W**, Maksymenko A, Hasan MS[#], Meléndez JJ, Olevsky E. *ICME 2021/2022, Poster Session.*

P12 POSTER **Machine Learning Based Hierarchical Multiscale Modeling of Mechanical Deformation for Metal-Matrix-Nanocomposites.** Hasan MS[#], **Xu W**, Berkeley G[#]. *ICME 2021/2022, Poster Session.*

2023

TMS 2023, 152nd Annual Meeting, San Diego CA (Mar 19 to 23)

Co-organizer, Powder Materials Processing and Fundamental Understanding. Session chair, Characterization and Analysis II.

P13 POSTER **Deformation Mechanisms of Metal Matrix Nanocomposites: A Molecular Dynamics Study.** **Xu W**, Hasan MS[#]. *Deformation Mechanisms, Microstructure Evolution, and Mechanical Properties of Nanoscale Materials.*

2024

TMS 2024, 153rd Annual Meeting, Orlando FL (Mar 3 to 7)

Co-organizer, Powder Materials Processing and Fundamental Understanding. Session chair, Tailoring Nano/Microstructure. Joined the Process Technology and Modeling Committee.

P14 TALK **An Atomistic Modeling Study of Electric Field Effect on Sintering Mechanisms of Zirconia.** Polifrone K[#], Delaney C[#], Hasan MS[#], Bayat H[#], Foronda C[#], Olevsky E, **Xu W**. *Powder Materials Processing and Fundamental Understanding. Proceedings paper C2.*

P15 TALK **Hydrogen Induced Transformation of Dislocation Core in Fe and Its Effect on Dislocation Mobility.** Hasan MS[#], Bayat H[#], Delaney C[#], Foronda C[#], **Xu W**. *Defects and Interfaces: Modeling and Experiments. Proceedings paper C3.*

2025

TMS 2025, 154th Annual Meeting, Las Vegas NV (Mar 23 to 27); 8th World Congress on ICME, Anaheim CA (Jun 2025)

Founded and led the AI-ICME symposium. Co-organizer, Powder Materials Processing and Fundamental Understanding. Organizing committee, ICME 2025. Became JOM Advisor (PTMC).

P16 TALK **Machine Learning-Driven Multiscale Analysis of Mechanical Properties in Metal-Matrix Nanocomposites.** Hasan MS[#], **Xu W**. *TMS 2025, AI Applications in ICME.*

P17 TALK **High Intensity Electric Nano Pulsing Technology for Rapid Materials Processing and Sintering.** Jiang R, Olevsky E, Torresani E, Maksymenko A, **Xu W**. *TMS 2025, Powder Materials Processing and Fundamental Understanding.*

P18 TALK **Integrating Molecular Dynamics and Experimental Techniques to Study Flash Sintering of Zirconia and 8% YSZ.** Delaney C[#], Soltero S[#], Grippi T, Jiang R, Olevsky E, **Xu W**. *TMS 2025, Powder Materials Processing and Fundamental Understanding.*

P19 TALK **Multiscale Modeling of Mechanical Deformation in Metal-Matrix Nanocomposites Enabled by Machine Learning.** **Xu W**, Delaney C[#], Morrison E[#], Soltero S[#], Alfaro M[#], Hasan MS[#]. *ICME 2025, PSP Linkages: Multiscale/Multiphysics Modeling IV.*

2026

TMS 2026, 155th Annual Meeting, San Diego CA (Mar 15 to 19)

Lead organizer, AI-ICME and Chemistry and Physics of Interfaces. Co-organizer, Olevsky honorary symposium. Chaired six sessions.

P20 INVITED **Field Effects of Electric Field/Current Assisted Material Processing.** **Xu W**, Delaney C[#], Polifrone K[#], Soltero S[#], Grippi T, Jiang R, Torresani E, Olevsky E. *Advancing the Frontier of Powder Materials Processing and Sintering: A Symposium in Honor of Eugene Olevsky (30 minute slot).*

P21 TALK **Localized Engineering of Grain Boundary Morphology by Electro-Nano-Pulsing Processing.** **Xu W**, Jiang R, Conversano G[#], Bravo-Calderon J[#], Torresani E, Olevsky E. *Chemistry and Physics of Interfaces.*

P22 TALK **Atomistic Understanding of Hydrogen Embrittlement at Interfaces in Fe-H System via Molecular Dynamics Simulation.** **Xu W**, Koyama M. *Steels in Extreme Conditions.*

P23 TALK **Localized Grain Boundary Engineering via Thermo-Elastic-Processing (TEP).** **Xu W**, Alfaro M[#], Jiang R, Soltero S[#], Burns J[#], Contreras A[#], Delaney C[#], Foronda C[#], Pavao M. *Chemistry and Physics of Interfaces. Proceedings paper C4.*

P24 TALK **The Effect of Grain Boundary Serrations on Mechanical Properties and Deformation Behavior in Polycrystalline Materials.** Burns J[#], Alfaro M[#], **Xu W**. *Chemistry and Physics of Interfaces.*

P25 TALK **A Grain Growth Study of Flash Sintering of 8 mol% Yttria-Stabilized Zirconia at 850 °C.** Delaney C[#], Soltero S[#], Grippi T, Jiang R, Torresani E, Olevsky E, **Xu W**. *Olevsky honorary symposium.*

P26 TALK **Ultra-Rapid Powder Consolidation and Densification via Electric Nano Pulsing Technology.** Jiang R, **Xu W**, Maximenko A, Torresani E, Olevsky E. *Olevsky honorary symposium.*

2027

TMS 2027, 156th Annual Meeting, Orlando FL (Mar 14 to 18). Accepted.

Lead organizer, AI-ICME and Field-Assisted Material Processing and Solidification (and editor of its proceedings). Co-organizer, Chemistry and Physics of Interfaces and Powder Materials Processing and Fundamental Understanding.

P27 TALK **Machine Learning-Enabled Multiscale Modeling of Deformation and Failure in Al-SiC Nanocomposites.** **Xu W**, Hasan MS[#]. *AI Applications in ICME.*

P28 TALK **Soft Translation Modes and Phantom Hydrogen Traps at a Nickel Σ3 {112} Incoherent Twin Boundary.** **Xu W**, Morales J[#]. *Chemistry and Physics of Interfaces.*

P29 TALK **Atomistic Modeling of Localized Thermal and Electron-Wind Mechanisms in Electro-Nano-Pulsed Ni-20Cr Grain Boundaries.** **Xu W**, Jiang R, Mosqueda N, O'Grady S, McLaughlin Z, Torresani E, Olevsky E. *Field-Assisted Material Processing and Solidification.*

P30 POSTER **Bridging the Strain-Rate Gap in Copper Deformation with a Bidirectional Physics-Informed Neural Network.** **Xu W**. *AI Applications in ICME. Proceedings paper C5.*

P31 TALK **Localized Grain Boundary Engineering in Fine-Grained Copper by Thermal-Elastic Processing.** Alfaro M[#], Contreras A[#], Sutton C[#], Burns J[#], Cea D[#], Clemons I[#], **Xu W**. *Chemistry and Physics of Interfaces.*

P32 TALK **Crystal Plasticity Modeling of Slip Localization Near Serrated Grain Boundaries in Copper.** Burns J[#], Alfaro M[#], Sutton C[#], Contreras A[#], **Xu W**. *Chemistry and Physics of Interfaces.*

P33 TALK **In-Situ SEM Observation of Thermal-Elastic Processing in Fine Grained Copper.** Sutton C[#], **Xu W**. *Chemistry and Physics of Interfaces.*

P34 POSTER **Stress-Dependent Hydrogen Diffusion at Coherent and Incoherent Σ3 Twin Boundaries in Nickel.** Morales J[#], **Xu W**. *Chemistry and Physics of Interfaces.*

P35 TALK **Electrothermal-Microstructure Modeling of Air-Atmosphere Flash Sintering and Grain Growth in 8YSZ.** Soltero S[#], Contreras R[#], Delaney C[#], Norris T, **Xu W**. *Field-Assisted Material Processing and Solidification.*

P36 POSTER **Oxygen-Environment Effects on Flash Sintering of 8YSZ: Air and High-Vacuum Experiments.** Contreras R[#], Soltero S[#], Delaney C[#], Norris T, **Xu W**. *Field-Assisted Material Processing and Solidification.*

P37 TALK **Rewriting the Interface: Nanosecond Electric Pulses as a Tool for Defect Engineering.** Olevsky E, Jiang R, **Xu W**, Torresani E. *Powder Materials Processing and Fundamental Understanding.*

RELATED TMS CO-SPONSORED MEETINGS (MATERIALS SCIENCE & TECHNOLOGY)

INVITED **Electro-Nano-Pulsing for Localized Grain Boundary Engineering and Quasi-Instantaneous Microstructural Control.** Olevsky E, **Xu W**, Torresani E, Jiang R, Maximenko A. *MS&T25, Sintering and Related Powder Processing Science and Technologies.*

INVITED **High-Intensity Electric Nano Pulsing.** Olevsky E, Torresani E, **Xu W**, Maximenko A, Jiang R. *MS&T24, Rustum Roy Symposium.*

No TMS presentations in 2016, 2017 or 2021. Records verified Oct 2026 against TMS ProgramMaster, TMS technical programs and publisher records (Wiley, Springer, Crossref).