

# Session Schedule Overview

## AUTOMOTIVE

### Advanced High-Strength & Other Specialty Sheet Steel Products for the Automotive Industry

	Location	Day/Time
Processing and Properties of TRIP Steels	W2-65	MON, 8:30 AM
Processing and Properties of Advanced High Strength and Specialty Steels I	W2-65	MON, 2:00 PM
Processing and Properties of Other Advanced High Strength and Specialty Steels II	W2-65	TUE, 8:30 AM
Manufacturing with Advanced High Strength Steels I: Fracture in Bending and Edge-Stretching	W2-65	WED, 8:30 AM
Manufacturing With Advanced High Strength Steel II: Simulation, Springback, Joining, Tool Materials	W2-65	WED, 2:00 PM
Auto/Steel Partnership 20th Anniversary Symposium	W2-65	THU, 8:30 AM

### Automotive and Ground Vehicles: Applications of Materials to Vehicle Designs

Keynote: Automotive Materials Outlook	W2-62	MON, 7:50 AM
Advanced Materials and Processes	W2-63	MON, 8:35 AM
Armor / Armored Vehicles	W2-63	MON, 2:00 PM
Keynote: Materials and Materials Challenges for Automotive Technologies Being Developed	W2-63	TUE, 7:50 AM
Multifunctional Materials I	W2-63	TUE, 8:35 AM
Multifunctional Materials II	W2-63	TUE, 2:00 PM
Joining and Creation of Advanced Structures	W2-63	WED, 8:30 AM

### Automotive and Ground Vehicles: Materials and Processes for Vehicles

Next Generation Lightweight Materials - Mg and Ti	W2-62	MON, 8:35 AM
Formability and Deformation	W2-62	MON, 2:00 PM
Elevated Temperature Forming	W2-62	TUE, 8:35 AM
Aluminum: Alloy Development and Microstructure	W2-62	TUE, 2:00 PM
Tribology, Surfaces, Lubricants and Coatings I	W2-62	WED, 8:30 AM
Tribology, Surfaces, Lubricants and Coatings II	W2-62	WED, 2:00 PM
Cast Iron	W2-62	THU, 8:30 AM
Stainless and Powder Metals	W2-62	THU, 2:00 PM

### Automotive Light Metal Castings: Technology and Applications

Melt Treatment, Control and Casting Process Development	W2-64	MON, 8:30 AM
Integrated Computational Materials Engineering, Computational Materials Design and Applications	W2-64	MON, 2:00 PM
Casting Process Development, Simulation and Modeling	W2-64	TUE, 8:30 AM
Casting Process Development, Simulation, Modeling and Optimization	W2-64	TUE, 2:00 PM
Alloy Development, Microstructure Evolution and Phase Transformation	W2-64	WED, 8:30 AM
Welding, Joining, Machining, Failure and Durability Analysis	W2-64	WED, 2:00 PM
Casting Process Development, Material Properties and Performance	W2-64	THU, 8:30 AM
Microstructure Evolution, Phase Transformation and Light Metal Composites	W2-64	THU, 2:00 PM

### High-Density Hydrogen Storage for Automotive Applications: Materials and Methods

Complex Hydrides I	W2-66	MON, 8:30 AM
Complex Hydrides II	W2-66	MON, 2:00 PM
Complex Hydrides III	W2-66	TUE, 8:30 AM
Complex Hydrides IV	W2-66	TUE, 2:00 PM
Tanks, Analysis, & Systems Engineering	W2-66	WED, 7:50 AM
Physisorptive Systems I	W2-66	WED, 2:00 PM
Physisorptive Systems II and Other Techniques	W2-66	THU, 8:10 AM
Chemical Storage I	W2-66	THU, 10:20 AM
Chemical Storage II	W2-66	THU, 2:00 PM

### Zinc Coated Steel Sheets

Zinc Coated Sheet Steels I	W2-69	WED, 2:00 PM
Zinc Coated Sheet Steels II	W2-69	THU, 8:30 AM

## ELECTRONIC AND MAGNETIC PROPERTIES

### Basic and Applied Needs for Superconductivity

YBCO and Flux Pinning	D2-11	MON, 2:00 PM
Coated Conductors I	D2-11	TUE, 8:30 AM

## Session Schedule Overview

<b>ELECTRONIC AND MAGNETIC PROPERTIES cont.</b>	<b>Location</b>	<b>Day/Time</b>
Coated Conductors II	D2-11	TUE, 2:00 PM
Coated Conductors III	D2-11	WED, 8:30 AM
<b>Ferroelectrics and Multiferroics</b>		
Magnetolectric Composites	D2-10	MON, 8:30 AM
Multiferroics, Nanoscale Structures and Properties	D2-10	MON, 2:00 PM
Domain Switching, Phase Transition, and Thin Film Phenomenon	D2-10	TUE, 8:10 AM
Ferroelectric Materials, Characterization, and Properties	D2-10	TUE, 2:00 PM
Single Crystals, Epitaxy, and Domain Structures	D2-10	WED, 8:30 AM
<b>General Topics in Electroceramics</b>		
Piezoelectric Materials, Motors, and Transducers	D2-15	TUE, 8:30 AM
Electroceramic Materials Processing and Characterization	D2-15	TUE, 10:20 AM
Sensor Materials and Performance	D2-15	TUE, 2:00 PM
Sosman Symposium - Electroceramics I	D2-15	WED, 8:30 AM
Sosman Symposium - Electroceramics II	D2-15	WED, 2:00 PM
<b>International Symposium on Dielectric Materials: Design, Preparation &amp; Applications</b>		
Composition, Processing, Micro-/Nanostructure, and Property Relationships	D2-09	MON, 8:30 AM
Ferroelectric Relaxors, Single Crystals, and Novel Compositions	D2-09	MON, 2:00 PM
Mechanism, Modeling and Designing Issues for Piezoelectric Materials	D2-09	TUE, 8:30 AM
Amorphous Dielectrics and Polymeric Materials: Applications and Processing	D2-09	TUE, 2:00 PM
Ferroc Materials Synthesis and Properties: A Joint Session with Electronics Division's General Session	D2-09	TUE, 3:50 PM
Synthesis and Properties of Thin Films, Thick Films, Laminated, and Multilayer Materials and Devices	D2-09	WED, 8:30 AM
Dielectric and Piezoelectric Materials and Composites: Applications and Processing	D2-09	WED, 2:00 PM
<b>Perovskite Material Engineering</b>		
Nano-scale Engineering A: Bulk Material and Properties	D2-11	WED, 2:00 PM
Nano-scale Engineering B: Thin Films and Dielectric Response	D2-11	THU, 8:30 AM
<b>Spintronic Materials and Devices</b>		
Spintronic Materials I	D2-10	THU, 8:50 AM
Spintronic Materials II	D2-10	THU, 2:20 PM
<b>Structure-Property Relationships of Multifunctional Oxide Thin Films and Interfaces</b>		
Effect of Surface and Interface on the Properties of Metal-oxides	D2-08	TUE, 8:30 AM
Characterization and Application of Metal-oxides	D2-08	TUE, 2:00 PM
Semiconductor Metal-oxides and Semiconductor/Metal-oxide Interfaces	D2-08	WED, 8:30 AM
Structural and Magnetic Properties of Metal-oxides	D2-08	WED, 2:00 PM
Oxide Film Synthesis and Integration	D2-08	THU, 8:30 AM
<b>ENERGY</b>		
<b>Degradation of Materials for Application in Nuclear Power and Waste Management Systems</b>		
Degradation of Materials for Application in Nuclear Waste Management Systems I	D2-12	WED, 8:30 AM
Degradation of Materials for Application in Nuclear Waste Management Systems II	D2-12	WED, 2:00 PM
Degradation of Materials for Application in Nuclear Power Systems	D2-12	THU, 8:30 AM
<b>Encapsulation and Immobilization of Hazardous and Nuclear Wastes Using Ceramics, Glass and Other Materials</b>		
Use of Analytical Techniques in Nuclear Waste Disposal I	D2-12	MON, 8:30 AM
Use of Analytical Techniques in Nuclear Waste Disposal II	D2-12	MON, 2:00 PM
Encapsulation and Immobilization of Nuclear Waste	D2-12	TUE, 8:30 AM

# Session Schedule Overview

<b>ENERGY cont.</b>	<b>Location</b>	<b>Day/Time</b>
<b>Energy Materials</b>		
Thermoelectric Materials I	D2-13	MON, 8:30 AM
Thermoelectric Materials II	D2-13	MON, 2:00 PM
Characterization Methods	D2-13	MON, 3:50 PM
Solar Energy Materials I	D2-13	TUE, 8:30 AM
Fuel Cells	D2-13	TUE, 10:20 AM
Solar Energy Materials II	D2-13	TUE, 2:00 PM
Energy Materials and Technologies I	D2-13	WED, 8:30 AM
Energy Materials and Technologies II	D2-13	WED, 2:00 PM
Nuclear Materials	D2-13	THU, 8:30 AM
<b>Fuel Cells: Materials, Processing, Manufacturing and Power Management Technologies</b>		
Fuel Cells Plenary Session	D2-14	MON, 8:30 AM
Cell Materials, Performance, Degradation, Manufacturing of High Temperature FCs I	D2-14	MON, 2:00 PM
Cell Materials, Performance, Degradation, Manufacturing of High Temperature FCs II	D2-14	TUE, 8:30 AM
Cell Materials, Performance, Degradation, Manufacturing of High Temperature FCs III	D2-14	TUE, 2:00 PM
PEM Fuel Cells, Fuel Processing, and Catalysts	D2-14	WED, 8:10 AM
Sealing, Contact, Stack Manufacturing, and Balance of Plants of SOFC	D2-14	WED, 2:00 PM
Interconnects of High Temperature Fuel Cells I	D2-14	THU, 8:30 AM
Interconnects of High Temperature Fuel Cells II	D2-14	THU, 2:00 PM
<b>FUNDAMENTALS AND CHARACTERIZATION</b>		
<b>Characterization &amp; Modeling of the Mechanical Performance of Advanced Alloys</b>		
Automotive Materials: Keynote Session I	D0-07B	MON, 8:30 AM
Automotive Materials: Keynote Session II	D0-07B	MON, 2:00 PM
Formability of Advanced Automotive Alloys	D0-07B	TUE, 8:30 AM
Characterization of Automotive Aluminum Alloys	D0-07B	TUE, 2:00 PM
Modelling the Mechanical Properties of Advanced Alloys	D0-07B	WED, 8:30 AM
Characterization of Advanced Alloys-I	D0-07B	WED, 2:00 PM
Characterization of Advanced Alloys-II	D0-07B	THU, 8:30 AM
<b>Discovery and Optimization of Materials through Computational Design</b>		
Application of Atomistic Modeling for the Design of Materials I	D0-05AB	MON, 8:30 AM
Application of Atomistic Modeling for the Design of Materials II	D0-05AB	MON, 2:00 PM
Computational Materials Science and its Impact in the Education of Future Generations of Materials Scientists and Engineers	D0-05AB	MON, 3:40 PM
Bridging Lengthscales: Application of Multiscale Modeling to Materials Design I	D0-05AB	TUE, 8:30 AM
Bridging Lengthscales: Application of Multiscale Modeling to Materials Design II	D0-05AB	TUE, 2:00 PM
Continuum Theoretical and Numerical Analyses to Describe the Properties, Equilibrium, and Kinetics of Materials I	D0-05AB	WED, 8:30 AM
Continuum Theoretical and Numerical Analyses to Describe the Properties, Equilibrium, and Kinetics of Materials II	D0-05AB	WED, 2:00 PM
<b>Frontiers in Materials Science: Materials for Sports and Medicine</b>		
Implant Performance	D0-03A	MON, 2:00 PM
Sports, Prosthetics and Biocompatibility	D0-03A	TUE, 8:30 AM
<b>Fundamentals of Brittle Fracture</b>		
Atomistics, Bonding & Scaling	D0-03A	TUE, 2:00 PM
Environmental Effects	D0-03A	WED, 8:30 AM
Microelectronics & Nanoscale	D0-03A	WED, 2:00 PM
Modeling	D0-03A	THU, 8:30 AM
Applications	D0-03A	THU, 2:00 PM

## Session Schedule Overview

### FUNDAMENTALS AND CHARACTERIZATION cont.

	Location	Day/Time
<b>High Temperature Material Systems - Fatigue Mechanisms and Prognosis</b>		
Role of Microstructure and Environment on Fatigue of Turbine Engine Materials I	D0-02AB	TUE, 2:00 PM
Role of Microstructure and Environment on Fatigue Life Variability in Ni-based Superalloy Disk Materials	D0-02AB	WED, 8:30 AM
Role of Microstructure and Environment on Fatigue of Turbine Engine Materials II	D0-02AB	WED, 2:00 PM
Role of Environment on Failure Mechanisms of Single Crystal Superalloys	D0-02AB	THU, 8:30 AM
Role of Microstructure and Environment on Fatigue of Ti-based Alloys and Other Structural Alloys	D0-02AB	THU, 2:00 PM
<b>International Symposium on Defects, Transport and Related Phenomena</b>		
Structure and Properties	D0-03C	MON, 8:30 AM
Transport I	D0-03C	MON, 2:00 PM
Transport II	D0-03C	TUE, 8:30 AM
Transport III	D0-03C	TUE, 2:00 PM
Transport and Relaxation	D0-03C	WED, 8:30 AM
Defect-Related Phenomena I	D0-03C	WED, 2:00 PM
Defect-Related Phenomena II	D0-03C	THU, 8:30 AM
<b>Developments in Web-Based Materials Property Databases, Knowledge Management of Materials Information, and Materials Informatics for Accelerated Materials Discovery</b>		
Data Content and Management	D0-06AB	WED, 8:30 AM
Cyber Infrastructure and Data Distribution	D0-06AB	WED, 2:00 PM
Collaborative Computational Tools	D0-06AB	THU, 8:30 AM
<b>Numerical, Mathematical, and Physical Modeling Tools for Materials Processes</b>		
Numerical, Mathematical, and Physical Modeling Tools for Materials Processes I	D0-03D	WED, 8:30 AM
Numerical, Mathematical, and Physical Modeling Tools for Materials Processes II	D0-03D	WED, 2:00 PM
Numerical, Mathematical, and Physical Modeling Tools for Materials Processes III	D0-03D	THU, 8:30 AM
Numerical, Mathematical, and Physical Modeling Tools for Materials Processes IV	D0-03D	THU, 2:00 PM
<b>Phase Stability, Diffusion, and Their Applications</b>		
First Principle Predictions of Phase Stability and Kinetics I	D0-04ABC	MON, 8:30 AM
First Principle Predictions of Phase Stability and Kinetics II	D0-04ABC	MON, 2:00 PM
Phase Transformations, Amorphization, and Diffusion in Oxides	D0-04ABC	TUE, 8:30 AM
Phase Transformations and Coarsening	D0-04ABC	TUE, 2:00 PM
Oxidation and Diffusion	D0-04ABC	WED, 8:30 AM
Interdiffusion Measurements and Modeling	D0-04ABC	WED, 2:00 PM
Phase Stability and Diffusion	D0-04ABC	THU, 8:30 AM
<b>What We Can Learn from Failure Analysis</b>		
Tools & Techniques	D0-01A	MON, 8:30 AM
Automotive Systems and Components	D0-01A	MON, 2:00 PM
Fatigue & Fracture I	D0-01A	TUE, 8:30 AM
Fatigue & Fracture II	D0-01A	TUE, 2:00 PM
Emerging Materials & Processes	D0-01A	WED, 8:30 AM
Corrosion, Wear and Coatings	D0-01A	WED, 2:00 PM
Forming & Fabrication	D0-01A	THU, 8:30 AM

### MATERIALS AND SYSTEMS

#### Coatings as an Enabler of System Performance

Environmental Barrier Coatings/Erosion I	02-38	TUE, 8:30 AM
Environmental Barrier Coatings/Erosion II	02-38	TUE, 2:00 PM

# Session Schedule Overview

<b>MATERIALS AND SYSTEMS cont.</b>	<b>Location</b>	<b>Day/Time</b>
Coatings Via Spray Processes I	02-38	WED, 8:30 AM
Coatings Via Spray Processes II	02-38	WED, 2:00 PM
Bondcoat/Oxidation	02-38	WED, 3:50 PM
Coating Characterization	02-38	THU, 8:30 AM
Coatings for Fatigue and Wear Applications	02-38	THU, 2:00 PM
<b>Commonality of Phenomena in Composite Materials</b>		
Fiber Reinforced Composites I	02-37	MON, 8:30 AM
Nanocomposites I	02-37	MON, 2:00 PM
Particle Reinforced Composites	02-37	TUE, 8:30 AM
Fiber Reinforced Composites II	02-37	TUE, 2:00 PM
Nanocomposites II	02-37	WED, 8:30 AM
<b>Copper and Copper Alloys for Emerging Technologies</b>		
Copper Alloy Technology I	02-37	WED, 2:00 PM
Copper Alloy Technology II	02-37	THU, 8:30 AM
<b>Glass and Optical Materials</b>		
Metallic Glasses	02-39	MON, 8:30 AM
Novel Glasses and Fibers	02-39	MON, 10:30 AM
ACerS Alfred R. Cooper Session and Award	02-39	MON, 2:00 PM
Crystalline and Glass-Ceramic Systems	02-39	TUE, 8:30 AM
Glass Science	02-39	TUE, 11:00 AM
<b>International Symposium on Ceramic Matrix Composites</b>		
Mechanical Properties	02-43	TUE, 2:00 PM
Oxide CMCs/Coatings	02-43	WED, 8:30 AM
Composites/Matrices	02-43	WED, 2:00 PM
UHTCs-I	02-43	THU, 8:30 AM
UHTCs-II	02-43	THU, 2:00 PM
<b>Iron Based Amorphous Metals: An Important Family of High-Performance Corrosion-Resistant Materials</b>		
Introduction and Plenary I	02-40	MON, 8:30 AM
Synthesis, Characterization, Phase Stability & Neutronics I	02-40	MON, 9:20 AM
Corrosion Resistance I	02-40	MON, 2:00 PM
Mechanical Properties & Damage Tolerance I	02-40	MON, 4:50 PM
Introduction and Plenary II	02-40	TUE, 8:30 AM
Synthesis, Characterization, Phase Stability & Neutronics II	02-40	TUE, 9:20 AM
Atomization, Thermal Spray & Applications I	02-40	TUE, 10:40 AM
Corrosion Resistance II	02-40	TUE, 2:00 PM
Corrosion Resistance III	02-40	TUE, 3:50 PM
Introduction and Plenary III	02-40	WED, 8:30 AM
Atomization, Thermal Spray & Applications II	02-40	WED, 9:20 AM
Mechanical Properties & Damage Tolerance II	02-40	WED, 2:30 PM
<b>Next Generation Biomaterials: Advanced Processing, Characterization, and Modeling of Materials for Medical Devices</b>		
Biomaterial Surfaces and Imaging	02-39	TUE, 2:00 PM
Processing and Characterization of Metallic Implant Materials	02-39	WED, 8:30 AM
Processing and Characterization of Bioceramics	02-39	WED, 2:00 PM
Physical and Mechanical Properties Characterization of Biomaterials, Part I	02-39	THU, 8:30 AM
Physical and Mechanical Properties Characterization of Biomaterials, Part II	02-39	THU, 2:00 PM
<b>Thermal Shock Resistant Materials</b>		
Thermal Shock Resistant Materials I	02-38	MON, 8:30 AM
Thermal Shock Resistant Materials II	02-38	MON, 2:00 PM

## Session Schedule Overview

NANOTECHNOLOGY	Location	Day/Time
<b>Innovative 3D Nanoparticulate Material Processing</b>		
Innovative Forming Techniques	W2-58	WED, 8:30 AM
Nano-Sintering	W2-58	WED, 2:00 PM
3D Nanoparticulate Material Characterization	W2-58	THU, 8:30 AM
<b>Materials Characterization at the Nanoscale: Instrumentation and Applications</b>		
Particulate Materials	W2-61	MON, 2:00 PM
Optical and Magnetic Methods	W2-61	TUE, 8:30 AM
Thermoanalytical Methods	W2-61	TUE, 10:20 AM
Chemical Characterization	W2-61	TUE, 2:00 PM
Electron- and Ion-Beam Instrumentation and Applications - I	W2-61	WED, 8:30 AM
Electron- and Ion-Beam Instrumentation and Applications - II	W2-61	WED, 2:00 PM
Surface Properties	W2-61	WED, 4:30 PM
Scanning Probe Microscopy	W2-61	THU, 8:30 AM
Mechanical Characterization	W2-61	THU, 2:00 PM
<b>Mechanics of Nanomaterials and Micro/Nanodevices: Experimental and Modeling</b>		
Mechanics of Nanomaterials and Micro/Nanodevices -I	W2-68	MON, 8:30 AM
Mechanics of Nanomaterials and Micro/Nanodevices-II	W2-68	MON, 2:00 PM
Mechanics of Nanomaterials and Micro/Nanodevices-III	W2-68	TUE, 8:30 AM
Mechanics of Nanomaterials and Micro/Nanodevices-IV	W2-68	TUE, 2:00 PM
Mechanics of Nanomaterials and Micro/Nanodevices-V	W2-68	WED, 8:30 AM
Mechanics of Nanomaterials and Micro/Nanodevices-VI	W2-68	WED, 2:00 PM
Mechanics of Nanomaterials and Micro/Nanodevices-VII	W2-68	THU, 8:30 AM
<b>Nanomaterials for Electronic Applications</b>		
Recent Developments in Nanoelectronics	02-44	WED, 8:30 AM
Nanoscale Particles and Powders	02-44	WED, 9:20 AM
Nanocomposites, Devices and Applications	02-44	WED, 2:00 PM
Nanotubes, Nanofibers and Nanowires	02-44	THU, 8:30 AM
<b>Nano-Processing - Property Enhancement by Quantum Confinement and Other Effects in Reduced Dimensions</b>		
Property Enhancement in Reduced Dimensions I	W2-58	TUE, 8:30 AM
Property Enhancement in Reduced Dimensions II	W2-58	TUE, 2:00 PM
<b>Nanostructured Ceramic Materials: Science and Technology</b>		
Synthesis and Processing of Nanopowders, Nanostructures, and Nanocomposites I	W2-67	MON, 8:30 AM
Biomaterials, Self-assembly, Arrayed, and Nanoporous Material	W2-67	MON, 2:00 PM
Synthesis and Processing of Nanopowders, Nanostructures, and Nanocomposites II	W2-67	TUE, 8:30 AM
Industrial Development and Applications	W2-67	TUE, 2:00 PM
Functional Behavior and Characterization of Nanomaterials	W2-67	WED, 8:30 AM
Nanotubes, Nanorods, Nanowires, and Other 1-D Structures	W2-67	WED, 2:00 PM
Simulations of Nanomaterials	W2-67	THU, 8:30 AM
<b>PROCESSING AND PRODUCT MANUFACTURING</b>		
<b>Advances in Cement-Based Materials: Manufacturing, Hydration, Admixture Interaction, Properties/Characterization, Modeling and Degradation/Durability</b>		
Properties of Fresh and Hardened Cement-Based Materials I	02-36	MON, 8:30 AM
Properties of Fresh and Hardened Cement-Based Materials II	02-36	MON, 2:00 PM
ACerS Cements Division Della Roy Lecture (Sponsored by Elsevier)	02-36	MON, 3:50 PM

# Session Schedule Overview

<b>PROCESSING AND PRODUCT MANUFACTURING cont.</b>	<b>Location</b>	<b>Day/Time</b>
Next Generation and Novel Cement-Based Materials	02-36	TUE, 8:30 AM
Advanced and Novel Methods for Characterization of Cements and Cement Manufacturing	02-36	TUE, 2:00 PM
Hydration and Related Phenomena in Cement-based Systems	02-36	WED, 8:30 AM
<b>Environmental Degradation of Non-Metallic Materials and Sensors</b>		
Environmental Degradation of Non-Metallic Materials	02-41	TUE, 2:00 PM
<b>Environmental Issues in the Material Science and Technology Industries</b>		
Green Materials and Processes	02-41	WED, 8:30 AM
Environmental Issues	02-41	WED, 2:00 PM
<b>Innovative Processing and Synthesis of Ceramics, Glasses and Composites</b>		
Microwave & Plasma Processing and Electrophoresis	02-33	MON, 2:00 PM
Coatings and Films	02-33	TUE, 8:30 AM
Reaction Mechanisms and Kinetics of Processes	02-33	TUE, 2:00 PM
Sol-gel & Soft Chemistry Processing, Laminated Object Manufacturing, Functionally Graded Materials	02-33	WED, 8:30 AM
Processing & Structure-Property Relationships	02-33	WED, 2:00 PM
Spark Plasma Sintering, Reaction Forming and Mechanical Alloying	02-33	THU, 8:30 AM
Injection Molding, Tape Casting, Freeze Casting, and Electroforming	02-33	THU, 2:00 PM
<b>Joining of Advanced and Specialty Materials IX</b>		
Joining of Steels (especially HSLA and AHSS) I	02-35	MON, 8:30 AM
Joining of Steels (especially HSLA and AHSS) II	02-35	MON, 2:00 PM
Repair and Manufacture of Industrial Gas Turbines and Aero-engine Components	02-35	TUE, 8:30 AM
Welding Metallurgy and Failure Analysis	02-35	TUE, 2:00 PM
Brazing and Other Joining Methods	02-35	WED, 8:30 AM
Joining of Ceramics	02-35	WED, 2:00 PM
Solid-State Joining Processes	02-35	THU, 8:30 AM
<b>Lead Free Solders: Emerging Issues in Manufacturing, Performance, and Reliability</b>		
Pb-Free Solder Alloys: Microstructure Evolution	02-42	WED, 8:30 AM
Pb-Free Solder Alloys: Phase Transformations and Reliability	02-42	WED, 2:00 PM
Pb-Free Solder Alloys: Reliability and Mechanical Properties	02-42	THU, 8:30 AM
<b>Surface Engineering using Hybrid Plasma Assisted PVD and CVD Technologies</b>		
Nanostructured Coatings	02-41	MON, 8:30 AM
Emerging Technologies; CVD and Plasma Surface Treatments	02-41	MON, 2:00 PM
Diagnostics; Process Optimization; Ion Assisted Deposition	02-41	TUE, 8:30 AM
<b>STEEL</b>		
<b>4th International Symposium on Railroad Tank Cars</b>		
4th International Symposium on Railroad Tank Cars I	W2-70	MON, 8:30 AM
4th International Symposium on Railroad Tank Cars II	W2-70	MON, 2:00 PM
<b>Future of Alloying in Steel</b>		
Future of Alloying in Steel	W2-70	TUE, 2:00 PM
<b>Recent Developments in Steel Processing</b>		
Casting	W2-69	MON, 8:30 AM
Processing and Modeling	W2-69	MON, 2:00 PM
<b>Steel Product Metallurgy and Applications</b>		
Thermomechanical Processing	W2-69	TUE, 8:30 AM
Microstructure and Heat Treatment	W2-69	TUE, 2:00 PM
Tool Steels	W2-70	WED, 8:30 AM
Surface Treatment and Corrosion	W2-69	WED, 8:30 AM
Product Metallurgy I	W2-70	WED, 2:00 PM
Product Metallurgy II	W2-70	THU, 8:30 AM
Stainless Steels	W2-70	THU, 2:00 PM

## Session Schedule Overview

### SPECIAL TOPICS

	Location	Day/Time
<b>Richard M. Fulrath Award Session</b>	D0-06AB	TUE, 8:30 AM
<b>Industry Track Program</b>		
Industry Track I	Detroit Hall	TUE, 11:00 AM
Industry Track II	Detroit Hall	TUE, 2:00 PM
Industry Track III	Detroit Hall	WED, 10:30 AM
Industry Track IV	Detroit Hall	WED, 1:30 PM
<b>Journal of Undergraduate Materials Research</b>	D0-02AB	MON, 2:00 PM
<b>Materials and Mechanics: The Profound Influence of Tony Evans on Engineering</b>		
<b>Use of Structural Materials</b>		
Stability of Coatings Under Extreme Environmental Effects	M2-29	MON, 8:30 AM
Atomistics of Interfaces and Fractures	M2-29	MON, 2:00 PM
Mechanics of Materials System	M2-29	TUE, 7:55 AM
Processing and Fracture of Composites	M2-29	TUE, 2:00 PM
<b>Poster Session</b>	<b>03-45</b>	<b>SUN, 6:00 PM</b>
<b>Federal Funding Workshop</b>	<b>M3-32</b>	<b>WED, 4:30 PM</b>

### LECTURES

ACerS Frontiers of Science and Society - Rustum Roy Lecture	M3-32	SUN, 5:00 PM
ASM/TMS Distinguished Lecture	02-44	MON, 1:00 PM
ASM/TMS Distinguished Lecture Session	02-44	MON, 2:00 PM
Alpha Sigma Mu Lecture	M2-30	MON, 3:00 PM
ACerS Cements Division Della Roy Lecture	02-36	MON, 3:50 PM
TMS Young Leaders Tutorial Luncheon & Lecture	02-44	TUE, 12:00 PM
Edward DeMille Campbell Memorial Lectureship	03-46	TUE, 12:45 PM
ACerS Edward Orton Jr. Memorial Lecture	M2-30	TUE, 1:00 PM
ACerS Arthur L. Friedberg Memorial Lecture	M2-30	WED, 10:30 AM
ACerS Robert B. Sosman Award and Lecture	D2-15	WED, 1:00 PM

# SYMPOSIA ORGANIZERS

## SPECIAL TOPICS

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**Honorary Symposium: Materials and Mechanics—The Profound Influence of Tony Evans on Engineering Use of Structural Materials**  
*Organizer: Arthur E. Heuer, Case Western Reserve University*

### Industry Track 2007

*Organizer: Richard Schorr, MetaMateria Partners LLC*

### Journal of Undergraduate Materials Research

*Organizer: Ben Poquette, Virginia Polytechnic Institute and State University*

*Co-organizers: Marie Paretti, Maura Borrego, Diane Folz, Navin Manjooran, Davis Eichelberger, Jean Kampe and Gary Pickrell; Virginia Polytechnic Institute and State University*

## AUTOMOTIVE

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### Advanced High-Strength and Other Specialty Sheet Steel Products for the Automotive Industry

*Organizer: James Fekete, General Motors Corporation*  
*Co-organizers: Isaac Garcia, University of Pittsburgh, John Speer, Colorado School of Mines, Matt Walp, DCX Engineering Department*

### Automotive and Ground Vehicles: Applications of Materials to Vehicle Designs

*Organizers: Nick Gianaris, General Dynamics Land Systems, John McDonald, General Motors Corporation*

### Automotive and Ground Vehicles: Materials and Processes for Vehicles

*Organizers: Paul Krajewski, General Motors Corporation, Arianna Morales, General Motors R&D, Dale Wetzel, DaimlerChrysler*

### Automotive Light Metal Castings: Technology and Applications

*Organizer: Mei Li, Ford Motor Company*  
*Co-organizers: Qigui Wang, GM – Powertrain, Thomas Prucha, Metal Morphosis, LLC, Douglas Matson, Tufts University*

### High-Density Hydrogen Storage for Automotive Applications: Materials and Methods

*Organizers: Donald Siegel, Ford Motor Company and Lennie Klebanoff, Sandia National Laboratories*  
*Co-organizers: Chris Wolverton, Ford Motor Company; Winnie Wong-Ng, National Institute of Standards & Technology; Scott Jorgensen, General Motors Corporation; Ji-Cheng Zhao, General Electric Company*

### Zinc Coated Steel Sheets

*Organizer: Frank E. Goodwin, International Lead Zinc Research Org.*  
*Co-organizer: Todd M. Osman, The Minerals, Metals & Materials Society*

## ELECTRONIC & MAGNETIC PROPERTIES

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### Basic and Applied Needs for Superconductivity

*Organizer: Mariappan P. Paranthaman, Oak Ridge National Laboratory;*  
*Co-organizers: Winnie Wong-Ng, National Institute of Standards & Technology, Thomas Kodenkandath, American Superconductor Corporation, Amit Goyal, Oak Ridge National Laboratory, Kaname Matsumoto, Kyoto University*

### Ferroelectrics and Multiferroics

*Organizers: Shashank Priya, The University of Texas Arlington, Paul Clem, Sandia National Laboratories, Xiaoli Tan, Iowa State University, Dwight Viehland, Virginia Tech, Chonglin Chen, University of Texas at San Antonio*

### General Topics in Electroceramics

*Organizer: Robert W. Schwartz, University of Missouri-Rolla*

### International Symposium on Dielectric Materials: Design, Preparation and Applications

*Organizer: R. Guo, The Pennsylvania State University*  
*Co-organizers: K.M. Nair, E.I. duPont de Nemours & Company Inc., D. Suvorov, Jozef Stefan Institute, S.M. Mukhopadhyay, Wright State University, R.W. Schwartz, University of Missouri-Rolla, A.S. Bhalla, The Pennsylvania State University, S-I. Hirano, Nagoya University*

### Perovskite Material Engineering

*Organizer: Steven C. Tidrow, U.S. Army Research Laboratory*  
*Co-organizers: Daniel M. Potrepka, U.S. Army Research Laboratory, Xiaoxing Xi, The Pennsylvania State University, Christine Klemenz, University of Central Florida*

### Spintronic Materials and Devices

*Organizer: Siu-Wai Chan, Columbia University*  
*Co-organizers: Sean Li, University of New South Wales, Arunava Gupta, University of Alabama, Shan X. Wang, Stanford University*

### Structure-Property Relationships of Multifunctional Oxide Thin Films and Interfaces

*Organizers: Xiaoqing Pan, University of Michigan, Siu-Wai Chan, Columbia University, Chonglin Chen, University of Texas at San Antonio, Quanxi Jia, Los Alamos National Laboratory, R. Ramesh, University of California at Berkeley, Isao Tanaka, University of Kyoto, Japan*

## ENERGY

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### Degradation of Materials for Application in Nuclear Power and Waste Management Systems

*Organizer: Xihua He, Southwest Research Institute*  
*Co-organizers: James Noël, University of Western Ontario, Vijay Jain, Washington Group International*

## SYMPOSIA ORGANIZERS

### Encapsulation and Immobilization of Hazardous and Nuclear Wastes Using Ceramics, Glass and Other Materials

Organizer: Allen Applett, Oklahoma State University

### Energy Materials

Organizer: Fatih Dogan, University of Missouri-Rolla

Co-organizers: Masanobu Awano, National Institute of Advanced Industrial Science and Technology, Dileep Singh, Argonne National Laboratory, Bruce Tuttle, Sandia National Laboratories

### Fuel Cells: Materials, Processing, Manufacturing and Power Management Technologies

Organizer: Prabhakar Singh, Pacific Northwest National Laboratory

Co-organizers: Abdul-Majeed Azad, University of Toledo; Donald C. Collins, U.S. Department of Energy; Prashant N. Kumta, Carnegie Mellon University; Colleen Legzdins, Ballard Power Systems; Arumugam Manthiram, The University of Texas at Austin; Ayyakkannu Manivannan, U.S. Department of Energy; S.K. Sundaram, Pacific Northwest National Laboratory; Zhenguo Gary Yang, Pacific Northwest National Laboratory

## FUNDAMENTALS AND CHARACTERIZATION

### Characterization and Modeling of the Mechanical Performance of Advanced Alloys—Bridging the Data Gap

Organizer: Mark R. Stoudt, National Institute of Standards & Technology

Co-organizers: Edmund Chu, Alcoa Technical Center; Manish Mehta, National Center for Manufacturing Sciences; Stephen W. Banovic, National Institute of Standards & Technology

### Discovery and Optimization of Materials through Computational Design

Organizers: Edwin Garcia, Purdue University; Katsuyo Thornton, University of Michigan

### Frontiers in Materials Science: Materials for Sports and Medicine

Organizer: James Earthman, University of California

Co-organizer: Srinath Viswanathan, University of Alabama

### Fundamentals of Brittle Fracture

Organizers: Jack Mecholsky, University of Florida; Stephen W. Freiman, National Institute of Standards & Technology

### High Temperature Material Systems – Fatigue Mechanisms and Prognosis

Organizer: Joseph D. Rigney, GE Aviation

Co-organizers: Mike Winstone, Defense Science & Technology Laboratory; Tim Gabb, NASA Glenn Research Center; Yong-Ho Sohn, University of Central Florida

### International Symposium on Defects, Transport and Related Phenomena

Organizer: Rüdiger Dieckmann, Cornell University

Co-organizers: Manfred Martin, RWTH Aachen University; Thomas O. Mason, Northwestern University

### Developments in Web-Based Materials Property Databases, Knowledge Management of Materials Information, and Materials Informatics for Accelerated Materials Discovery

Organizers: Terry Wong, Pratt & Whitney Rocketdyne; Ursula R. Kattner, National Institute of Standards & Technology; Loni Peurrung, Pacific Northwest National Laboratory

Co-organizers: Corbett C. Battaile, Sandia National Laboratories; J. Gilbert Kaufman, Kaufman Associates Limited; Toni Marechaux, Strategic Analysis Inc.

### Numerical, Mathematical and Physical Modeling Tools for Materials Processes

Organizer: Patricio F. Mendez, Colorado School of Mines

Co-organizer: Ben Q. Li, University of Michigan

### Phase Stability, Diffusion and Their Applications

Organizer: John Morral, The Ohio State University

Co-organizers: Zi-Kui Liu, The Pennsylvania State University; Raymundo Arroyave, Texas A&M University; Steven A. Attanasio, Knolls Atomic Power Laboratory; Nils Sandberg, Royal Institute of Technology, Stockholm; Yongho Sohn, University of Central Florida

### What We Can Learn from Failure Analysis

Organizer: Ron Parrington, IMR Test Labs Inc.

Co-organizers: Brett Miller, IMR Test Labs Inc.; Daniel P. Dennies, Boeing Company

## MATERIALS AND SYSTEMS

### Coatings as an Enabler of System Performance

Organizer: Rodney Trice, Purdue University; rtrice@purdue.edu

Co-organizers: Dongming Zhu, NASA Glenn Research Center; H.T. Lin, Oak Ridge National Laboratory; Daniel Mumm, University of California at Irvine; Pravansu S. Mohanty, University of Michigan; Yutaka Kagawa, University of Tokyo

# SYMPOSIA ORGANIZERS

## **Commonality of Phenomena in Composite Materials**

*Organizer: Nikhilesh Chawla, Arizona State University*  
*Co-organizers: E. Lara-Curzio, Oak Ridge National Laboratory; K.K. Chawla, University of Alabama-Birmingham, Carl J. Boehlert, Michigan State University*

## **Copper and Copper Alloys for Emerging Technologies**

*Organizer: William D. Spiegelberg, Brush Wellman Inc.*

## **Glass and Optical Materials**

*Organizer: John Ballato, Clemson University*

## **International Symposium on Ceramic Matrix Composites**

*Organizer: Narottam P. Bansal, NASA Glenn Research Center*  
*Co-organizers: Jitendra P. Singh, Air Force Office of Scientific Research; Sung R. Choi, Naval Air Systems Command; Aldo R. Boccaccini, Imperial College of Science, Technology & Medicine*

## **Iron-Based Amorphous Metals: An Important Family of High-Performance Corrosion-Resistant Materials**

*Organizer: Joseph C. Farmer, Lawrence Livermore National Laboratory*  
*Co-organizers: Patrice E.A. Turchi, Lawrence Livermore National Laboratory; John H. Perepezko, University of Wisconsin*

## **Next Generation Biomaterials: Advanced Processing, Characterization and Modeling of Materials for Medical Devices**

*Organizer: John A. Nychka, University of Kentucky*  
*Co-organizers: Elizabeth Marie Perepezko, Biomet Inc.; Carl J. Boehlert, Michigan State University; Roger J. Narayan, University of North Carolina*

## **Thermal Shock Resistant Materials**

*Organizer: Dinesh Agrawal, The Pennsylvania State University*

## **NANOTECHNOLOGY**

### **Innovative 3D Nanoparticulate Material Processing**

*Organizer: Kathy Lu, Virginia Polytechnic Institute and State University*  
*Co-organizers: Alex Aning, Virginia Polytechnic Institute and State University; Ming-Jen Pan, Naval Research Laboratory*

### **Materials Characterization at the Nanoscale: Instrumentation and Applications**

*Organizer: Lawrence P. Cook, National Institute of Standards & Technology*  
*Co-organizer: Bryan D. Huey, University of Connecticut*

## **Mechanics of Nanomaterials and Micro/Nanodevices – Experimental and Modeling**

*Organizer: Xiaodong Li, University of South Carolina*  
*Co-organizers: Brad Boyce, Sandia National Laboratories; Scott X. Mao, University of Pittsburgh; Ken Gall, Georgia Institute of Technology; Dehua Yang, Hysitron Inc.; Jun Lou, Rice University*

## **Nanomaterials for Electronic Applications**

*Organizer: Sharmila M. Mukhopadhyay, Wright State University*  
*Co-organizers: Raj N. Singh, University of Cincinnati; K.M. Nair, E.I. duPont de Nemours & Co. Inc.; Bor Z. Jang, Wright State University*

## **Nano-Processing - Property Enhancement by Quantum Confinement and Other Effects in Reduced Dimensions**

*Organizer: Bipradas Dutta, Catholic University of America*

## **Nanostructured Ceramic Materials: Science and Technology**

*Organizer: James S. Vartuli, GE Global Research*  
*Co-organizers: Sanjay Mathur, Leibniz-Institut für Neue Materialien; Michael Z. Hu, Oak Ridge National Laboratory; Richard M. Laine, University of Michigan; Olga B. Koper, NanoScale Materials Inc.*

## **PROCESSING AND PRODUCT MANUFACTURING**

### **Advances in Cement-Based Materials: Manufacturing, Hydration, Admixture Interaction, Properties/Characterization, Modeling and Degradation/Durability**

*Organizer: Joseph J. Biernacki, Tennessee Technological University*

### **Environmental Degradation of Nonmetallic Materials and Sensors**

*Organizer: Raul B. Rebak, Lawrence Livermore National Laboratory*  
*Co-organizers: James Earthman, University of California; Robert J. Hanrahan, National Nuclear Security Administration*

### **Environmental Issues in the Material Science and Technology Industries**

*Organizer: Allen Apblett, Oklahoma State University*

### **Innovative Processing and Synthesis of Ceramics, Glasses and Composites**

*Organizer: Jitendra P. Singh, Air Force Office of Scientific Research*  
*Co-organizers: Narottam P. Bansal, NASA Glenn Research Center; Antonio R. de Arellano López, Universidad de Sevilla; Takashi Goto, Tohoku University; Jinho Joo, Sungkyunkwan University*



## SYMPOSIA ORGANIZERS

### **Joining of Advanced and Specialty Materials IX**

*Organizer: Viola L. Acoff, University of Alabama*  
*Co-organizers: Patrick W. Hochanadel, Los Alamos National Laboratory; Judy Schneider, Mississippi State University; James F. Quinn, General Motors Corporation; Thomas J. Lienert, Los Alamos National Laboratory; Leijun Li, Utah State University; Y. (Norman) Zhou, University of Waterloo*

### **Lead-Free Solders: Emerging Issues in Manufacturing, Performance and Reliability**

*Organizer: Carol A. Handwerker, Purdue University*  
*Co-organizers: Iver E. Anderson, Iowa State University; Jeng-Gong Duh, National Tsing Hua University*

### **Surface Engineering Using Hybrid Plasma Assisted PVD and CVD Technologies**

*Organizer: Vladimir Gorokhovskiy, Arcomac Surface Engineering LLC*  
*Co-organizers: Richard J. Smith, Montana State University; Erich Bergmann, Geneva School of Engineering UAS*

## **STEEL**

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### **4th International Symposium on Railroad Tank Cars**

*Organizer: Murali Manohar, Mittal ArcelorSteel*

### **Future of Alloying in Steel**

*Organizer: Chris Schade, Hoeganaes Corporation*

### **Recent Developments in Steel Processing**

*Organizer: Matthew J. Merwin, US Steel*

### **Steel Product Metallurgy and Applications**

*Organizer: Brian D. Nelson, Dofasco Inc.*