Conference Program

ASTFE

11TH THERMAL AND FLUIDS ENGINEERING CONFERENCE (HYBRID)

March 9-12, 2026

www.astfe.org/tfec2026/

Preface

The American Society of Thermal and Fluids Engineers (ASTFE), TFEC2026 Conference (Hybrid) will be held on March 9-12, 2026 in person at Arizona State University, AZ, USA and partially online virtual. ASTFE is the premier international society by and for professionals within the thermal and fluids science and engineering community. The 11th ASTFE conference, TFEC2026 provides an international forum for the dissemination of the latest research and knowledge in the thermal and fluid sciences. Authors are invited to submit abstracts covering, but not limited to, the following areas:

Track 1: Thermal Science

- TS: Aerospace Applications
- TS: Heat Pipes
- TS: Innovations in Heat Exchangers
- TS: Combustion, Fire and Fuels
- TS: Electronics Cooling
- TS: Heat Transfer in Multiphase Flows
- TS: Flow and Heat Transfer in Materials Processing Science and Manufacturing
- TS: Heat/Mass Transfer Enhancement Techniques
- TS: Material Issues, Ceramics, Low Thermal Conductivity
- TS: Radiation Heat Transfer
- TS: Inverse Problems and Parameter Estimation in Heat Transfer

Track 2: Fluid Dynamics

- FD: Atomization
- FD: Flow Instability
- FD: Rheology of Nonlinear Materials and Complex Fluids
- FD: Measurement and Modeling of Environmental Flows
- FD: Multiphase Flows
- FD: Nano and Micro Fluids Applications
- FD: Turbulent Flows
- FD: Aerodynamic Design and Analysis
- FD: Turbomachinery
- FD: Thin Film Fluid Phenomena

Track 3: Interdisiplinary Studies

- ID: Experimental Methods/Tools in Fluid Mechanics and Heat/Mass Transfer
- ID: Computational Methods/Tools in Thermal-Fluid Systems
- ID: Machine Learning and Artificial Intelligence in Thermo-Fluid Engineering
- ID: Fundamentals in Fluid Flow and Heat/Mass Transfer
- ID: Flow and Heat Transfer in Biological Systems
- ID: Fluid Flow and Heat Transfer in Industrial and Commercial Processes
- ID: Electric, Magnetic, Flow and Thermal Phenomena in Micro and Nano-Scale Systems

Track 4: Energy and Sustainability

- ES: Carbon Capture and Sequestrations
- ES: Heat Pumps and Innovative Cooling and Heating Systems
- ES: Sustainable Buildings and Cities
- ES: Alternative Energy Conversion Systems (Wind, Biomass, etc.)
- ES: Energy Storage Systems
- ES: Hydrogen Energy Systems
- ES: Solar Energy Equipment and Processes
- ES: Innovative Refrigeration Systems
- ES: Nuclear Energy Systems
- ES: Energy-Water-Food Nexus
- ES: Novel Thermodynamic Cycles
- ES: Thermal Management of Energy Systems

Track 5: Educations and Ethics

- EE: Advanements in Thermo-Fluids Education
- EE: Ethics in Thermo-Fluid Engineering
- EE: Innovations in Capstone Projects

Track 6: Competitions and Special Conference Program Elements

- Students Poster Session
- 2nd Annual ASTFE Thermal Hydraulics Competition: Heat Exchanger Design

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About ASTFE

The American Society of Thermal and Fluids Engineers **(ASTFE)** was established in July 2014 to promote the science and applications of thermal and fluids engineering and related disciplines.

ASTFE aims at providing opportunities to promote the dissemination of information and knowledge regarding thermal and fluids engineering, both nationally and internationally. It aligns itself with globally collaborative activities in the traditional areas of heat transfer and fluids engineering, as well as, in emerging areas such as those related to energy, environmental sustainability, manufacturing, thermal management, and micro- and nano-scale transport phenomena.

ASTFE encourages the personal and professional development of young scientists and engineers, and promotes cooperation with other engineering and technical societies to enhance interactions with industry, government agencies and the public at large. Of particular interest to the Society is the organization of conferences and workshops that bring together diverse groups in these fields.

American Society of Thermal and Fluids Engineers **(ASTFE)** is the U.S. nonprofit organization based in New York operating on web 2.0 IT platform to arrange professional communications, support conferences and professional communities. The organization is supported by individual contributors, private foundations and other governmental bodies. All contributions and donations are tax deductible. **ASTFE** supports Open Access movement.

ASTFE News

March 2026 — In July 2025, **Prof. Lorenzo Cremaschi** transitioned from Chair of the ASTFE Executive Committee to President of ASTFE. He succeeds **Prof. Francine Battaglia** (*University at Buffalo*), who served as ASTFE President from 2023 to 2025. ASTFE extends its sincere appreciation to Prof. Battaglia for her dedicated service, initiatives, and leadership during her term.

During the same period, ASTFE Executive Committee (EC) Co-Chair **Prof. Jon Longtin** (*Stony Brook University*) and EC Member **Prof. Nesrin Ozalp** (*Illinois State University*) transitioned into the roles of EC Chair and Vice Chair, respectively. The EC also welcomed two new members: **Prof. Ankur Jain** (*University of Texas at Arlington*) and **Prof. Hamidreza Najafi** (*Florida Institute of Technology*).

Finally, inaugural EC member **Prof. Ting Wang** (*University of New Orleans*) has announced his retirement following a distinguished 42-year academic career, and is now a Professor Emeritus at UNO. Prof. Wang will continue to serve on the EC through June 2026. ASTFE gratefully acknowledges his long-standing service, leadership, and commitment to the Executive Committee since its founding in 2022.

If you are interested in having more information, or if you would like to get involved with ASTFE activities, please contact **Dr. Lorenzo Cremaschi** (email: lorenzo.cremaschi@auburn.edu).

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Thermal Fluids Engineering Award

A Thermal and Fluids Engineering Award has been established to recognize substantial contributions to thermal and fluids engineering. This is the part of the honors bestowed by the society on its members for their contributions.

2026 TFE AWARD WINNER

Vish Prasad

Professor of Mechanical Engineering,
University of North Texas

For pioneering contributions to heat transfer in porous media, convective heat transfer, materials process modeling and simulation, transport phenomena of supercritical fluids, and new phase diagrams with liquid boundary and dwij point

Early Career Researcher Award

2026 EARLY CAREER RESEARCHER AWARD WINNER

Kishan Bellur

Assistant Professor, Mechanical & Materials Engineering,
University of Cincinnati

For integration of novel experiments with theory and multiscale modeling to uncover phase change physics, advancing sectors from terrestrial electronics cooling to microgravity fluid management

ASTFE Fellowship

2026 ELECTED ASTFE FELLOWS

Samuel Graham

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Alain Kassab

University of Central Florida

Zhuomin Zhang

Georgia Institute of Technology

Yi Zheng

Northeastern University

Plenary Speakers

SURESH GARIMELLA

Affiliation: University of Arizona

Position: President of the University of Arizona, University Distinguished Professor

Title: The Power of Partnerships in Advancing Fundamental Research and Technology

Abstract: In my journey through various roles as a university educator and researcher, in government and in science and technology policy, and in higher education leadership including in engagement, global affairs, research and partnerships, and presidency, I have been impressed by the profound power of partnerships. At a time of unprecedented transformation in higher education and in federal funding avenues in particular, I will share my experience with building a long-standing and resilient industry consortium for thermal management that has stood the test of time and offers a robust partnership model for conducting fundamental research and supporting student mentorship and training, while making lasting contributions to technology advancement.

So much of the challenge in electronics thermal management comes from the resistances to transport at solid, liquid and gas interfaces, and our Cooling Technologies Research Center has worked over nearly three decades to overcome these resistances. I will highlight how the Center came into being, the challenges in establishing a common understanding of precompetitive research and its goals among fierce competitors, and the very significant contributions that emerged from this work, including a cohort of fantastic graduates who are the Center's true legacy. I will illustrate the nature of the research we conducted by elaborating on the work done through a large DARPA project as one example. Rapid leaps in AI, biomedicine, space sciences and national security applications have only further underlined the critical need for thermal management in enabling these advances.

I gratefully acknowledge the sustained support of my research group's work over the years from many companies and federal agencies. The members of our Cooling Technologies Research Center, in particular, have enriched and informed our work with their counsel and collaboration since 1999. And I am grateful to all the partners in university leadership across three universities – Purdue, Vermont and Arizona – without whose collaboration, wisdom and resilience the resistances would have won out.

Bio: Suresh Garimella serves as the 23rd president of the University of Arizona and University Distinguished Professor in the Department of Mechanical and Aerospace Engineering, positions he assumed on October 1, 2024. He was unanimously appointed by the Arizona Board of Regents following a robust national search. On selecting Garimella to lead the university, Board Chair Cecilia Mata praised his collaborative leadership, experience, and vision, calling him a "tireless champion for students" who is well suited to lead the university into a bright future.

Previously, he was president of the University of Vermont (UVM) from 2019 to 2024. Under his leadership, the university underscored its reputation as a premier flagship research university dedicated to providing a world-class student experience and committed to fulfilling its land-grant mission, a focus he brings to the U of A as well.

Throughout his career, Garimella has emphasized the importance of access and affordability for students, and he has worked to promote excellence in the student learning experience. A professor of mechanical engineering, he is both a highly cited scholar and researcher and a passionate educator, mentoring over 90 graduate students and 50 post-doctoral scholars, 29 of whom were placed in prestigious faculty positions across the world. During his tenure as UVM's president, he led an annual undergraduate seminar class devoted to engaging students in civil discourse on multifaceted contemporary issues.

As a researcher, Garimella has made seminal contributions to the field of electronics thermal management and energy efficiency at micro and nano scales, and in sustainable energy systems technology and policy. He is co-author of over 625 refereed publications and 16 issued patents, and he has been recognized as an elected Member of the National Academy of Engineering and elected Fellow of the National Academy of Inventors, the American Association for the Advancement of Science and the American Society of Mechanical Engineers.

Garimella also has made important contributions in national and international policy matters. He served as a member of the National Science Board, which oversees the National Science Foundation and acts as an independent body of advisers to both the President and Congress on policy matters related to science and engineering. He also chairs the research advisory board of Sandia National Laboratories, is a member of the board of directors at Modine and the executive committee for the Council on Competitiveness, and previously served as a Jefferson Science Fellow at the U.S. Department of State and as Senior Fellow for Energy and Climate Partnership of the Americas.

Prior to his time leading the University of Vermont, President Garimella served at Purdue University as the Goodson Distinguished Professor of Mechanical Engineering and Executive Vice President for Research and Partnerships. Under his leadership of Purdue's $660 million research enterprise, the university achieved five consecutive record years in sponsored funding and seeded approximately 50 startups annually. He developed strategic and comprehensive partnerships with major corporations, NGOs, and national governments in Colombia, India, and the Middle East, conceived and implemented ambitious campuswide initiatives in life sciences and integrative data science, and oversaw Purdue's Discovery Park, a unique set of facilities and institutes where the convergence of disciplines helped solve global challenges related to health and life sciences, sustainability, food, energy, and defense and security.

His educational background includes a Ph.D. from the University of California, Berkeley, an M.S. from The Ohio State University, and a bachelor's degree from the Indian Institute of Technology, Madras.

Tuesday — March 10, 2026
8:30 AM - 9:30 AM

Memorial Student Union, ASU Tempe Campus - 2nd floor, **Arizona Ballroom**

AMIT SHARMA

Affiliation: Tata Consulting Engineers Limited

Position: Managing Director & CEO of Tata Consulting Engineers Limited (TCE)

Title: Engineering a Better Tomorrow: A Three-Horizon Roadmap for a Resilient World

Abstract: In a world defined by rapid innovation, building a better tomorrow requires not just new technology, but a strategic evolution of engineering itself. This talk presents a maturity model for the future, mapping the convergence of digital, physical, and quantum worlds across three critical horizons:

Horizon 1: The Foundation of Now (Resilience & Efficiency) The journey begins with mastering the present. To ensure sustainable infrastructure, we must adopt an integrated **CAPEX and OPEX mindset**, where **Digital Twins** serve as the essential bridge for lifecycle efficiency. Simultaneously, as we navigate the energy transition, we must solve the immediate challenge of the hybrid grid. This requires realigning base load by balancing the **mechanical momentum of physical flywheels** with the emerging **"virtual flywheel" of renewables** to ensure grid stability today.

Horizon 2: The Acceleration of Tomorrow (Industrial AI) Moving to the next phase, we enter the **Industrial AI era**. This horizon is defined by the "true collaboration of minds"—a synergy where human expertise is augmented by AI and generative engineering. This collaboration will break traditional linear constraints, driving an accelerated pace of innovation and enabling the circular economy principles required for a truly sustainable future.

Horizon 3: The Vision of the Future (Quantum & Hybrid Intelligence) Finally, we look to the horizon where **classical and quantum engineering converge**. This "**Hybrid Intelligence**" will act as a turbocharger for classical systems, unlocking discoveries currently beyond our reach—in **metallurgy, catalysts, semiconductors** and the **hydrogen economy**. It paves the way for the ultimate engineering frontiers: precise **fusion and fission**, securing clean energy for generations to come.

Bio: Before becoming the MD, Amit was the Executive Director and Chief Operating Officer of TCE from July '12 onward and on the EcoFirst Services Private Limited board from March '13 onwards.

Amit's experience spans Design and Engineering Consulting with a focus on Product Development, Project and Plant Engineering and Design & Asset Lifecycle Management across Process, Discrete and Infrastructure sectors. He has championed the creation and implementation of enabling governance, business models, change management, program management and solutions.

Amit strongly believes in leveraging people, process and computer-aided design & engineering digital toolsets to promote transformation and collaboration. He is a promoter of the next generation of lean thinking, innovation, agility and optimization across the engineering and design value chain.

Prior to Tata Consulting Engineers (TCE), Amit served as the Resident Director of Atkins India Pvt Limited, part of the global engineering and design firm WS Atkins PLC. In this role, he was responsible for the Global design centre of excellence and Atkins India business spanning Energy, AEC, Rail, Transportation, Aerospace, Water & Environment and Infrastructure related engineering consulting.

Before joining Atkins in London, UK, Amit was with Infosys based in London. He spent close to a decade spearheading the Engineering & Design, Product Lifecycle Management and Embedded Systems offerings across the globe. At Infosys, Amit managed clients worldwide, spanning sectors ranging from Automotive, Aerospace, Retail, Energy to Heavy Engineering, Agro-Chemical, Pharmaceuticals and Hi-Tech.

He started his professional career at Tata Motors before moving to the US. He did his higher studies and worked with Sapient Technologies in their Collaborative technologies practice, and led the creation of the Product Lifecycle Management offering.

At TCE, Amit works closely with the team to charter TCE's growth, scale, and evolution into an innovative and leading Design & Engineering Consultancy across selected sectors and International markets, leveraging its glorious 60 years of proven excellent track record. Amit is also leading industry trends like energy transition, sustainability. industry 5.0 etc.

He also is a Central Governing Council Member of the Services Export Promotion Council (SEPC) and Chairs the Design, Engineering and Construction sector.

As the General Council member of Consulting Engineers Association of India (CEAI), he champions the cause of the Indian Consulting Engineers fraternity.

Wednesday — March 11, 2026
8:15 AM - 9:15 AM

Memorial Student Union, ASU Tempe Campus - 2nd floor, **Arizona Ballroom**

MATT KALOUPEK

Affiliation: Archer-Daniels-Midland Company (ADM)

Position: Vice President – Carbon Capture and Storage

Title: The Carbon Crunch: Mapping the Demand for Decarbonization

Abstract: Demand for decarbonization is accelerating across public and private sectors as well as domestic and international markets, creating a powerful pull for scalable, durable climate solutions. In this plenary, I'll discuss how widespread decarbonization pressures across supply chains—from agriculture to heavy industry—are driving rapid development of new technologies and carbon pathways. These forces are creating strategic opportunities to integrate engineered and nature based solutions, expand carbon management capabilities, and deliver value in emerging low carbon markets.

Bio: Matt Kaloupek is Vice President of Carbon Capture and Storage at ADM, where he leads strategy and execution in one of the company's most dynamic growth areas. With a background spanning engineering, operations, finance, and commercial leadership, Matt brings a uniquely interdisciplinary perspective to industrial decarbonization. He holds a BSE in Mechanical Engineering from Duke and an MBA from Millikin University. Matt also serves on the Illinois State University Mechanical Engineering Industry Advisory Council, helping shape the next generation of technical leaders. His work focuses on bridging technical innovation with commercial viability in the carbon economy.

Thursday — March 12, 2026
8:15 AM - 9:15 AM

Memorial Student Union, ASU Tempe Campus - 2nd floor, **Arizona Ballroom**

Keynote Speakers

SRINIVAS GARIMELLA

Affiliation: Georgia Institute of Technology

Position: Hightower Chair in Engineering and a Professor in the Woodruff School of Mechanical Engineering at the Georgia Institute of Technology

Title: The Heat Pump: A "Swiss Army Knife" that Heats, Cools, Cleans, Conserves and Preserves

Abstract: Burgeoning worldwide energy demand and its impact on global climate are driving a transition toward electrification in the energy utilization sector. In the push toward decarbonization, electrification alone may not yield immediate reductions in carbon emissions because fossil-free renewable options are still in the ramp up phase. Innovations in heat pumps provide a suite of options to complement renewable electricity and progress toward this goal. The role of sorption in space-conditioning through innovative heat and mass transfer processes driven by renewable energy sources or waste heat will be presented. Waste heat driven sorption heat pumps to provide cooling in severe ambient conditions will be shown to reduce the carbon footprint at kW to MW scales. Application of adsorption-based thermal storage and heating pumping to enhance the performance of commercial dryers will be discussed. A combination of adsorption and absorption systems for the development of diurnal and seasonal thermal storage systems will be discussed. Likewise, thermochemical adsorption-based thermal storage to augment the performance of vapor compression heat pumps and better utilize intermittent renewable energy or address varying electricity costs will be discussed. Adsorption chillers driven by biomass, solar or waste heat for use in the cold chain to reduce food spoilage in developing countries with uncertain electricity infrastructure will also be presented. Other applications include novel multi-purpose systems that achieve simultaneous space-conditioning and water purification at the distributed residential scale using absorption heat pumps. Further extensions inspired by thermal wave heat pump technology to exploit fast heat and mass transfer kinetics in hollow sorbent loaded microchannel fibers to enable rapid temperature swing adsorption (RTSA) for CO2 capture from power plants will also be discussed. These representative applications demonstrate the continued vast potential for innovations in heat pumps to address a wide range of essential human needs such as food, water, clothing, thermal comfort, and the environment.

Bio: Dr. Srinivas Garimella is the Hightower Chair in Engineering and Director of the Sustainable Thermal Systems Laboratory at Georgia Institute of Technology. He is a Fellow of the ASME and of ASHRAE. He is Editor of the Int. J. Air-conditioning and Refrigeration, and past Associate Editor of the ASME J. Heat Transfer and ASME J. Energy Resources Technology, and of the ASHRAE SBTE Journal. He is Past Chair of the Advanced Energy Systems Division of ASME and was on the ASHRAE Research Administration Committee. He has mentored over 75 students pursuing their M.S. and Ph.D. degrees, postdoctoral researchers, and research engineers, with his research resulting in over 400 archival journal and conference publications, a textbook on Heat Transfer and Fluid Flow in Minichannels and Microchannels (2nd Ed., Elsevier 2014), and books on Condensation Heat Transfer (World Scientific Publishing, 2015) and Adsorption Heat Pumps (Springer Nature, 2021.) He is the recipient of the NSF CAREER Award (1999), the ASHRAE New Investigator Award (1998), the SAE Ralph E. Teetor Educational Award for Engineering Educators (1998). He received the ASME Heat Transfer Memorial Award (2024) and the Georg Alefeld award (2024) for outstanding and lifelong contributions to the field of sorption chillers and heat pumps. He also received the ASME Award for Outstanding Research Contributions in the Field of Two-Phase Flow and Condensation in Microchannels (2012) and the Prominent Researcher Award at the Micro Flow and Interfacial Phenomena Conference 2022 for sustained and outstanding contributions to the fundamentals of phase change heat transfer at mini- and micro-scales and coupled heat and mass transfer in binary fluids. He was recognized with the Thomas French Distinguished Educator Achievement Award (2008) from The Ohio State University, and the Zeigler Outstanding Educator Award (2012) and the Sigma Xi Sustained Research Award (2023) from Georgia Tech.

Tuesday — March 10, 2026
2:15 PM - 3:00 PM

Memorial Student Union, ASU Tempe Campus - 2nd floor, **Arizona Ballroom**

HERB HAYDEN

Affiliation: Southwest Solar Technology, LLC

Position: President and CTO

Title: High Concentration Solar - Prototype Development and Test at Southwest Solar Technology LLC

Abstract: Since 2012, Southwest Solar has performed several R&D prototype activities requiring high concentrated solar energy. These include concentrating photovoltaics (CPV), and solar thermal R&D projects with others including supercritical CO2 generation, air-based turbine generation and storage, and methane separation to produce high quality graphite and hydrogen. With the efficiency and low cost now achieved in PV products, the commercial use of solar concentration will require the inclusion of energy storage and higher efficiency, or the production of higher value products or materials. Small scale demonstration and refinement is essential prior to commercial scale up of new concepts.

Bio: Herb created Southwest Solar Technology LLC (SST) in 2012 to develop distributed-scale solar dish-based systems, including advanced Dish Concentrating PV (CPV), and related high efficiency combined heat-and-power (CHP) and solar thermal applications. The current SST CPV dish development is designed for a target rating 15 kW electric output, with 20-25 kW of byproduct heat available, using advanced integrated optics, thermal management and power conversion in a proprietary CPV module. An alternative application of the SST dish is 40 kW thermal power at higher temperatures. SST also includes expertise in advanced hybrid electronic/thermal power module R&D and manufacturing, dba Omni Power Modules.

Prior to SST LLC Herb created SST Inc in 2008 to develop and manufacture a solar dish-based air turbine technology. A key accomplishment of that activity was the world's largest commercial solar dish, over 320m2 collector area required for size of the turbine engine, and onsun proof of concept demonstration and test of the solarized-turbine design, one of the few teams in the world that has operated an air turbine on sun. After the US economic slowdown in 2010 with a decline in US utility interest in large scale solar, the large dish-turbine development was halted in favor of the current distributed scale CPV Dish / CHP activity, leveraging the technology lessons-learned.

From 1992 to 2008 Herb managed the Solar Test and Research (STAR) center for Arizona Public Service (APS), the largest electric utility in Arizona. This unique research facility was devoted to real-world demonstration of solar technologies and innovation. Herb led the development and installation of over six megawatts of innovative solar generation technology at multiple sites across Arizona. Much of this pioneering work lead directly to present day designs in PV trackers and CPV systems.

Tuesday — March 10, 2026
2:15 PM - 3:00 PM

Memorial Student Union, ASU Tempe Campus - 2nd floor, **Turquoise Ballroom**

SUNG JIN KIM

Affiliation: Korea Advanced Institute of Science & Technology

Position: Professor, Department of Mechanical Engineering

Title: Microchannel-based Cooling Technologies for the AI Era

Abstract: Cooling technologies have underpinned industrial and commercial innovation for more than five decades. With the rapid expansion of artificial intelligence, modern computing platforms increasingly rely on high-performance GPUs and TPUs operating at unprecedented power densities. As a result, the need for efficient, compact, and scalable thermal management solutions has become more critical than ever. Among emerging approaches, various types of microchannel-based cooling devices have gained prominence for their ability to dissipate extremely high heat fluxes within tightly constrained footprints. These technologies are now widely regarded as key enablers of next-generation electronic systems in the AI era.

In this keynote lecture, I will provide a comprehensive overview of state-of-the-art cooling devices based on microchannel architectures, encompassing both active and passive cooling approaches. We will delve into recent innovations—including microchannel heat sinks and micro pulsating heat pipes—developed at the Applied Heat Transfer Lab at KAIST. Through selected examples and design insights, the presentation will highlight how microchannel technologies are shaping the future of thermal management in high-performance electronics.

Bio: Sung-Jin Kim received the Ph.D. degree in mechanical engineering from the Ohio State University, Columbus, OH, USA, in 1989.,He is a Professor with the Department of Mechanical Engineering, Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea. Before joining KAIST in 1997, he was been a Group Leader of the Thermal Engineering Center, IBM, Tucson, AZ, USA, for seven years. His research group at KAIST held the National Research Laboratory status from 2006 to 2011. He edited a book entitled Air Cooling Technology for Electronic Equipment.,Dr. Kim is a member of the Korean Academy of Science and Technology and an ASME Fellow. He was a recipient of the Scientific Achievement Award from the Korea Society of Mathematical Education, the Excellent Teaching Awards from KAIST, two Invention Achievement Awards and five Author Recognition Awards from IBM. In 2012, he was awarded a prestigious nine-year grant by Korea's Creative Research Initiative to develop flexible and thin thermal superconductors.

Tuesday — March 10, 2026
3:00 PM - 3:45 PM

Memorial Student Union, ASU Tempe Campus - 2nd floor, **Arizona Ballroom**

NENAD MILJKOVIC

Affiliation: University of Illinois at Urbana-Champaign

Position: Founder Professor; Director, ACRC

Title: Holistic Rack-To-Processor Power And Thermal Co-Design For Future Servers And Data Centers

Abstract: All electrical energy going into a data center must eventually be rejected as heat to the environment through a cooling system. Data center cooling can be energy intensive; it may account for up to 33—40% of overall data center energy usage and consumes hundreds of billions of gallons of fresh water per year. With chip manufacturing processes reaching fundamental limitations for scaling ever-smaller transistors, it is anticipated that processor power will rise, increasing data center power density. In addition, recent weather events have caused extreme heat, droughts, and other challenges, limiting the availability of sometime scarce resources for cooling purposes. Cooling energy for data centers is significant today, and these trends make it an even more important energy area in the future. In this talk, I will discuss our highly collaborative work to develop transformational, highly efficient, and reliable cooling technologies for data centers. We target to reduce total cooling energy expenditure to less than 5% of a typical data center's IT load at any time and any U.S. location for a high-density compute system. This reduction of data center cooling energy will reduce the operational CO2 footprint of data center operations. We achieve these

goals by working with key stakeholders such as Nokia Bell Labs, Meta, and Wiwynn to dramatically reduce the thermal resistance of heat rejection (< 0.01 K/W), allowing for coolants to exist at temperatures much closer to operating temperatures of the latest generation of chips (targeting <10°C difference between chip and 42°C outdoor ambient). This results in more efficient heat removal from the facility. I will discuss our independent single-phase and two-phase cooling solutions and design methods which both enable high volumetric compute density systems such as the 1MW server rack, equivalent to >25kW per 1U server. I will also discuss how these methods can be used to develop next generation data centers which optimize for energy efficiency.

Bio: Miljkovic's research intersects the multidisciplinary fields of thermo-fluid sciences, interfacial phenomena, and renewable energy. He aims to bring about transformational efficiency enhancements in energy (power generation to oil and gas to renewables), water, agriculture, transportation and electronics cooling by fundamentally manipulating heat-fluid-surface interactions across multiple length and time scales. The focus of his research are directed towards both: 1) fundamental research on micro/nanostructured surfaces for phase change, interfacial phenomena, and electrokinetics, and 2) applied research on devices and systems including solar thermal energy conversion and atmospheric energy harvesting.

Education:

- BASc, Mechanical Engineering, University of Waterloo, 2009
- M.S., Mechanical Engineering, MIT, 2011
- Ph.D., Mechanical Engineering, MIT, 2013

Tuesday — March 10, 2026
3:00 PM - 3:45 PM

Memorial Student Union, ASU Tempe Campus - 2nd floor, **Turquoise Ballroom**

KYLE SQUIRES

Affiliation: Arizona State University

Position: Senior Vice Provost of Engineering, Computing and Technology; Vice Provost of the Polytechnic Campus; Dean, Fulton Schools of Engineering

Title: Scaling Excellence: Lessons from Designing a Comprehensive Engineering Enterprise

Abstract: Over the past two decades, Arizona State University has undertaken a deliberate transformation centered on the New American University - a model that challenges the traditional trade-off between excellence and access. Within this framework, the Ira A. Fulton Schools of Engineering (FSE) have evolved to become the largest engineering school in the United States. This scale was not the primary objective, but the inevitable consequence of a commitment to provide world-class engineering education at the pace of societal demand. Today, FSE serves as a distinct embodiment of the New American University, demonstrating how the model's principles can be translated into a high-impact engineering context.

This talk traces the evolution of FSE, examining the strategic choices and organizational innovations that enabled rapid scaling while simultaneously strengthening research productivity and educational rigor. The presentation highlights the organizational and cultural shifts required to build deep partnerships and integrate interdisciplinary research at scale. Key topics include reimagining entry pathways to move from gatekeeping to talent development, maintaining quality within a large-scale system, and the 'win-win' of aligning school initiatives with a broader institutional vision. The discussion will also address the urgent challenges facing the field: the integration of artificial intelligence, shifting workforce demands, and the imperative to broaden participation amid funding constraints - the future of engineering education will be defined by how effectively institutions align mission and structure to move from being excellent at what they do to being essential to the societies they serve.

Bio: Kyle Squires serves as the dean for the Ira A. Fulton Schools of Engineering and Senior Vice Provost for Engineering, Computing and Technology at Arizona State University. Previously, he served as the vice dean and interim dean for the Fulton Schools and as director of the School for Engineering of Matter, Transport and Energy (SEMTE), one of the eight Ira A. Fulton Schools of Engineering. As SEMTE director, he oversaw degree and research programs in aerospace engineering, chemical engineering, materials science and engineering, mechanical engineering and the professional science master's program in solar energy engineering and commercialization.

Professor Squires leads the advancement of the Fulton Schools, focused on global leadership in engineering education and research and innovation at scale. Central to the student experience is the "Fulton Difference" – opportunities beyond the classroom that include signature undergraduate and graduate research, peer mentoring, entrepreneurship, student organizations, internships, and community service. The Fulton Schools research enterprise is characterized by discoveries of fundamental value and advancement of technologies for immediate impact, as evidenced by the fact that FSE is among the top 5 schools in the country for licenses and options, startups and invention disclosures per $10 million in research expenditures.

He has held numerous visiting appointments in the U.S., Japan and France and was elected a fellow of the American Physical Society in 2008. A professor of mechanical and aerospace engineering, Professor Squires' research expertise encompasses computational fluid dynamics, turbulence modeling of both single-phase and multi-phase flows, and high-performance computing. Specific interests include the use of direct numerical simulation and large eddy simulation applied to particle-laden turbulent flows and the development of hybrid Reynolds-averaged and large eddy simulation techniques for high Reynolds number wall-bounded flows. Squires applies his expertise to exploration of ways to improve the aerodynamics of aircraft, ground vehicles and sports equipment.

Education:

- Ph.D. Mechanical Engineering, Stanford University 1990
- M.S. Mechanical Engineering, Stanford University 1985
- B.S. Mechanical Engineering, Washington State University 1984

Wednesday — March 11, 2026
1:00 PM - 1:45 PM

Memorial Student Union, ASU Tempe Campus - 2nd floor, **Arizona Ballroom**

KARMA SAWYER

Affiliation: Pacific Northwest National Laboratory

Position: Director, Electricity Infrastructure and Buildings Division

Title: The Multiscale Transformation of Building and Energy Systems: From Micro to Macro; Impact in Modern Systems

Abstract: Foundational thermal and fluid phenomena continue to drive transformative advancements across energy systems and the built environment, including heat pumps, building controls, refrigerants, and more. This keynote explores the multiscale interactions spanning micro-level phenomena to macro-scale impacts, highlighting how innovations in materials, sensors, refrigerants, and controls optimize performance and reliability while unlocking new value propositions such as grid services. We review key interactions and couplings between these scales, efforts underway by the Department of Energy to advance and verify these solutions, and the impact potential at the national scale. Looking ahead, this presentation outlines emerging trends and technologies reshaping the future of built environments, and identifies key challenges and opportunities.

Bio: Dr. Karma Sawyer is the Director of the Electricity Infrastructure and Buildings (EI&B) Division, responsible for shaping and managing a vision and strategy to assure that PNNL addresses DOE's most important energy efficiency, clean energy and electricity infrastructure challenges. The EI&B Division consists of more than 400 staff members in six technical groups.

Prior to joining PNNL, Karma served as the Program Manager for Emerging Technologies at DOE's Building Technologies Office. In this role, she developed and executed multi-year R&D strategies across a range of building technologies. She also worked collaboratively with the national labs and external stakeholders to advance cross-cutting initiative, such as the Grid-interactive Efficient Buildings, Advanced Building Construction and Grid Modernization Initiatives. From 2010-2013, Karma served as an Assistant Program Director and Fellow at ARPA-E, focusing on carbon capture and thermal storage technologies.

Dr. Sawyer earned a Ph.D. in Chemistry from the University of California, Berkeley in 2008. She also holds a B.S. in Chemistry from Syracuse University.

Wednesday — March 11, 2026
3:45 PM - 4:30 PM

Memorial Student Union, ASU Tempe Campus - 2nd floor, **Arizona Ballroom**

JAY P. GORE

Affiliation: Purdue University

Position: Reilly Professor in Combustion Engineering

Title: Fire Safety of Battery Energy Storage Systems

Abstract: To ensure fire safety in Battery Energy Storage Systems (BESS) used for utility power, a multi-layered approach, including fire-resistant materials, advanced detection systems, and effective suppression methods, along with adherence to industry standards like NFPA 855.

The fire safety measures for BESS include:

1. PREVENTION AND DESIGN:

- **Fire-Resistant Materials:** Utilize fire-resistant materials in the design and construction of BESS facilities.
- **Fire Barriers:** Install fire barriers between battery units to prevent fire spread.
- **Containerized Systems**: Many BESS facilities use battery racks enclosed in containers, which can isolate malfunctioning batteries and are equipped with integrated fire suppression and explosion prevention systems.
- **Site Layout**: Consider site layout to ensure easy access to BESS equipment and prevent fire spread to other areas or the wider environment.
- **Electrical Protection**: Implement robust electrical protection schemes to prevent faults that could lead to thermal runaway.
- **Adherence to Standards**: Follow industry standards like NFPA 855 and UL 9540 for the installation and safety of stationary energy storage systems.

2. DETECTION AND EARLY WARNING:

- **Advanced Monitoring Systems**: Implement advanced monitoring systems that provide real-time data on battery conditions, such as temperature, voltage, and state of charge.
- **Thermal Imaging Cameras**: Use thermal imaging cameras to detect temperature anomalies and potential fire hazards.
- **Off-Gas Detection**: Employ off-gas detection technologies to alert operators to the initial stages of battery failure, before thermal runaway occurs.
- **Very Early Warning Smoke Detection**: Install very early warning smoke detection systems to provide early warning of an impending fire event.

3. FIRE SUPPRESSION AND CONTAINMENT:

- **Total Flooding Condensed Aerosol Fire Suppression Systems**: Install total flooding condensed aerosol fire suppression systems, which are effective in suppressing fires in BESS.
- **Fire Suppression Agents**: Use fire suppression agents like Stat-X to quickly suppress fires in the event that other measures are unsuccessful.
- **Ventilation**: Install exhaust ventilation to remove smoke and hazardous gases in the event of a fire.
- **Sprinkler Protection Systems**: Consider sprinkler protection systems, especially in areas where traditional fire suppression methods may not be effective.

Bio: Dr. Jay P. Gore is the Reilly University Chair Professor in the School of Mechanical Engineering at Purdue University. He has been the Associate Head of Graduate Studies within the School of Mechanical Engineering, the Director of the campuswide Discovery Park Energy Center, and the Associate Dean of Engineering for Research and Entrepreneurship in the College of Engineering.

Professor Gore received the U. S. Presidential Young Investigator Award in 1991, the ASME Best Paper in Heat Transfer Literature Award in 1986 and the AIAA Best Paper Award in 1987. His honors include the 2021 Advisor to Sustainable Development and Campus Cloud Networks award, and the 2012 Purdue College of Engineering Outstanding Team Award for the Summer Undergraduate Research Fellowships (SURF). Jay received his B. E. from College of Engineering, Pune, India, his M.S. and Ph.D. from Penn State and his Post-Doctoral certificate from the University of Michigan. He is a Fellow of the AIAA, the International Combustion Institute and the ASME and has served as an Associate Editor of the AIAA Journal, the ASME Journal of Heat Transfer, and the 26th International Combustion Symposium. Dr. Gore has authored/co-authored over 300 publications and directed the work of over 50 researchers. His research team utilizes advanced laser diagnostics, machine learning, and artificial intelligence to address the grand challenge problems of energy, climate, human health and the environment.

Wednesday — March 11, 2026
3:45 PM - 4:30 PM

Memorial Student Union, ASU Tempe Campus - 2nd floor, **Turquoise Ballroom**

ERNEST CHUA KIAN JON

Affiliation: National University of Singapore

Position: Associate Professor

Title: Advancing Thermal Processes for Sustainable Cooling and Dehumidification

Abstract: Cooling demand worldwide is projected to triple by 2050, driving an urgent need for high-efficiency, low-carbon solutions, particularly in hot and humid climates. This keynote will present recent research on advanced cooling and dehumidification technologies, including membrane-based dehumidifiers, hybrid desiccant–vapour compression systems, and heat-driven adsorption processes. Emphasis will be placed on how these innovations enhance moisture removal, reduce energy consumption, and improve system reliability. The talk will also highlight the role of thermodynamic optimisation, system integration, and novel materials in achieving scalable solutions. Collectively, these developments provide a practical framework for high-performance cooling in buildings, data centres, and urban infrastructure, addressing the pressing challenges of climate-sensitive thermal management.

Bio: Dr. Chua Kian Jon is an internationally recognized expert in clean thermal energy systems. His research spans thermal energy recovery, hybrid cooling, desiccant dehumidification, solar-assisted systems, and thermal energy storage for buildings and industrial applications. He is internationally recognized for his pioneering work in dew-point evaporative cooling, membrane dehumidification, and waste heat recovery, enabling low-energy solutions for sectors such as buildings, data centres, EVs, and district cooling. Dr. Chua has published over 280 SCI-indexed journal papers, eight monographs, and holds more than 10 patents. A Fellow of the IMechE and IET, he ranks among the top 1% of scientists globally (USERN) and top 2% of energy researchers per Stanford since 2021, with 18,000+ citations and an H-index of 71. He is the founding Editor-in-Chief of Thermal Science and Engineering (Nature Portfolio) and serves as Associate Editors of numerous journals in Elsevier, Springer, Wiley, and Taylor & Francis. A two-term NUS Dean's Chair holder, he has received multiple international awards and leads major competitive research projects and is frequently invited to deliver plenary and keynote lectures and serve on technical committees at major international conferences. His work continues to shape the future of sustainable thermal energy systems across Asia and beyond.

Friday— March 13, 2026
10:15 AM - 10:45 AM

Online virtual via Zoom and Whova

TEC Talk Speakers

TECHNOLOGY I ENTREPRENEURSHIP I COMMUNICATION
FROM IDEA TO TECHNOLOGY TO PRODUCT

HADI GHASEMI

Affiliation: University of Houston

Position: J. Willard Gibbs Distinguished Professor of Mechanical & Aerospace Engineering

Title: Breaking the Ice: From Fundamentals to Next-Generation Ice-Shedding Surfaces

Abstract: Icing affects a wide range of systems-from aircraft and drones to marine structures, power lines, and energy infrastructure-where it degrades performance, disrupts operations, and creates major safety risks. Despite its broad impact, developing coatings that can both shed ice effectively and endure harsh conditions remains a major materials challenge, as low ice adhesion and high durability rarely coexist. Here, we present the physics of ice–material interactions and introduce new design strategies that overcome this trade-off, enabling a new generation of highly durable, high-performance ice-shedding coatings.

We tackle this long-standing challenge by introducing fracture-controlled surfaces (FCSs), a new materials paradigm that simultaneously enables ultra-low ice adhesion and unprecedented mechanical durability. In FCSs, the chemistry and architecture of the material are engineered so that interfacial cracks nucleate at predefined locations and propagate rapidly with minimal energy loss. By directing how and where fracture occurs, FCSs shed ice with remarkably low force while maintaining durability improvements of more than three orders of magnitude over existing materials. We also establish a predictive mathematical framework that quantifies solid–surface adhesion on FCSs, providing a foundation for the rational design and synthesis of next-generation ice-shedding materials.

We also examine the practical challenges and real-world experiences involved in bringing this technology from the lab to the market. This includes navigating material scale-up and long-term field testing. Along the way, we share the key lessons, unexpected obstacles, and success stories that have shaped the commercialization journey of this technology.

Bio: Hadi Ghasemi is J. Willard Gibbs Professor in the Department of Mechanical Engineering at the University of Houston and director of Nanotherm research group. He received his PhD degree in 2011 from the University of Toronto. He continued his studies as a Postdoctoral Associate at Massachusetts Institute of Technology (MIT) from 2012 to 2014. He is the recipient of the several awards in the field of heat transfer and surface physics including Senior Member of National Academy of Inventors, Texas New Venture Competition award, AFOSR Young Investigator Award, top-three innovator award of NASA iTech, University Research Excellence Award. He is a co-founder of Elemental Coatings company. His research works are highlighted in Nature, Economists and Popular Science among others. His current research interests are in surface physics, thermal sciences and energy systems.

Wednesday — March 11, 2026
2:30 PM - 3:30 PM

Memorial Student Union, ASU Tempe Campus - 2nd floor, **Arizona Ballroom**

AMY MARCONNET

Affiliation: Purdue University

Position: Professor of Mechanical Engineering and Professor of Materials Engineering

Title: Engineering Thermal Materials for Advanced Electronics Packaging

Abstract: With the drive for higher performance and new functionalities, advanced electronic devices use 2.5D and 3D packaging approaches to integrate multiple electronic components within a single package. The closely integrated components often have different thermal limits – for example, memory must be maintained at much lower temperatures than processors, in order to prevent damage and degradation. Controlling heat transfer pathways within the heterogeneously integrated systems can enable high performance in all the components. This presentation focuses on two strategies for controlling heat transfer in heterogeneous packages: (1) passive thermal isolation approaches based on aerogels and (2) active thermal switching elements based on graphene and other foams. The structure and properties of these materials are engineered through a combination of experimental and computational analyses to optimize performance. Ultimately, thermally-informed design of the package can lead to higher performance and more reliable systems.

Bio: Dr. Amy Marconnet is a professor of Mechanical Engineering and professor of Materials Engineering (by Courtesy), as well as a Perry Academic Excellence Scholar, at Purdue University. She received a B.S. in Mechanical Engineering from the University of Wisconsin – Madison in 2007, and an M.S. and a PhD in Mechanical Engineering at Stanford University in 2009 and 2012, respectively. Her dissertation focused on thermal phenomena in nanostructured materials. She then worked briefly as a postdoctoral associate at the Massachusetts Institute of Technology, before joining the faculty at Purdue University in August 2013. At Purdue, she has developed an interdisciplinary research program to evaluate, understand, and control the physical mechanisms governing the

multi-functional properties of materials, machines, and systems with an emphasis on thermal management of electronic devices. Her work has won outstanding/best paper awards several times at IEEE ITherm and ASME InterPACK, and from IEEE Transactions on Components, Packaging and Manufacturing Technology - Components, Characterization & Modeling. In 2017, she won the Woman in Engineering Award from the ASME Electronics & Photonics Packaging Division (EPPD). In 2020, she won the Bergles-Rohsenow Young Investigator Award in Heat Transfer and the Outstanding Graduate Student Mentor from the Official Mechanical Engineering Graduate Association (OMEGA) and the College of Engineering. Winning the Humboldt Fellowship for Experienced Researchers, she conducted research at Karlsruhe Institute of Technology in the 2021-22 academic year. She is a fellow of ASME and a member of the Scientific Council of the International Centre for Heat and Mass Transfer.

Wednesday — March 11, 2026
2:30 PM - 3:30 PM

Memorial Student Union, ASU Tempe Campus - 2nd floor, **Arizona Ballroom**

XIULIN RUAN

Affiliation: Purdue University

Position: Professor of Mechanical Engineering

Title: Radiative Cooling Paints and Elastomeric Coatings for Energy-efficient Buildings and Transportation

Abstract: This talk highlights our recent advances in ultrawhite and colored radiative cooling paints and elastomeric coatings formulated from optimized pigments including CaCO3, BaSO4, and hBN nanoparticles and polymer binders including acrylic and silicone. These coatings achieve record-high solar reflectance and sky window emissivity, cool surfaces by up to 4.5 °C below ambient in daytime, and deliver over 100 W/m2 of cooling power. Their cost effectiveness, durability and environmental friendliness point to substantial energy saving potential for buildings and transportation.

Bio: Dr. Xiulin Ruan is a professor in the School of Mechanical Engineering and the Birck Nanotechnology Center at Purdue University. He received his B.S. and M.S. degrees in Engineering Mechanics from Tsinghua University in 2000 and 2002, followed by an M.S. in Electrical Engineering (2006) and a Ph.D. in Mechanical Engineering (2007) from the University of Michigan, Ann Arbor, before joining Purdue. Dr. Ruan has made significant contributions to predictive simulations and machine learning approaches for phonon and photon thermal transport, the processing of radiative cooling nanocomposites, and scalable thermal and energy technologies. He has published more than 180 journal articles, holds 2 issued patents with 10 pending, and has delivered over 100 invited talks and seminars. As a dedicated mentor, Dr. Ruan places strong emphasis on student development and success. He has supervised more than 45 graduate students and 11 postdoctoral researchers, with 20 of them now serving in faculty positions in the US and around the world. His honors include the 2024 ASME McDonald Mentoring Award, the 2023 Brillouin Medal from the International Phononics Society for his seminal work on four phonon scattering, recognition in Time Magazine's Best Inventions of 2023, the 2022 Guinness World Record for the world's whitest paint, the 2022 Purdue College of Engineering Excellence in Research Award, and the 2012 NSF CAREER Award. He is a Fellow of the American Society of Mechanical Engineers.

Wednesday — March 11, 2026
2:30 PM - 3:30 PM

Memorial Student Union, ASU Tempe Campus - 2nd floor, **Arizona Ballroom**

J. RENE VILLALOBOS

Affiliation: FreshKube Inc.

Position: CEO & President, FreshKube Inc.; Associate Emeritus Professor in the Industrial Engineering Program at Arizona State University

Title: Modular and Expandable Refrigeration Capacity for Efficient Preservation of Perishable Goods

Abstract: Lack of cold chain access forces small growers of fresh produce and other perishables into low-value markets, undermines their economic viability, and drives food waste that can exceed 50% of potential harvests in some developing regions. This talk introduces an integrated precooling, transport, and storage solution — mini-containers — designed to close this gap for small farmers and a wide range of other applications.

Mini-containers are $4 \times 4 \times 4$ ft^3, stackable, insulated, and environmentally controlled units that function as cyber-enabled, Lego-like building blocks. Each unit can operate independently or be incrementally connected to others to create the exact volume and environmental conditions required for heterogeneous, small, or mixed loads.

By enabling shared capacity across multiple growers — each with different products, temperature needs, origins, and destinations — mini-containers support safe consolidation without cross-contamination. They also allow any dry vehicle to be converted into a partially or fully refrigerated carrier with minimal capital investment, expanding cold chain access where it has historically been out of reach.

Some technical challenges still need to be resolved before mini-containers can reach their full operational efficiency. This talk offers a preview of those challenges and how they are being addressed.

Bio: René Villalobos is an Associate Emeritus Professor in the Industrial Engineering Program at Arizona State University (ASU). He earned a bachelor's degree in Mechanical Engineering from Tecnológico de Chihuahua, a master's degree in Industrial Engineering from the University of Texas at El Paso, and a Ph.D. in Industrial Engineering from Texas A&M University. His research interests encompass food logistics, energy

efficiency, applied operations research, automated quality assurance, and manufacturing systems.

Currently, he serves as the president of Freshkube Inc. (www.freshkube.com), Terra Integrated Solutions (www.tisconsulting.org), and Vica Delicias (www.vicadelicias.com). At Freshkube, he is engineering modular logistics systems that deliver the efficiency of large-scale shipments to small, distributed payloads—bridging the gap between bulk transport and last-mile delivery. Sponsors of this work include National Science Foundation, the City of Phoenix and the US Air Force.

During his tenure at Arizona State University, Villalobos led the International Logistics and Productivity Improvement Laboratory (ILPIL, http://ilpil.asu.edu), where he deployed advanced analytical frameworks—including discrete event simulation, statistical inference, data mining, and mathematical optimization—to solve complex industrial challenges. His methodologies were applied across diverse projects, driving measurable improvements in workforce productivity, capacity planning, and logistics performance.

From 2016 to 2021, Villalobos served as Director of the Arizona State University site of the Industrial Assessment Center (IAC), a U.S. Department of Energy–sponsored initiative focused on advancing energy efficiency in small to mid-sized U.S. manufacturers. Under his leadership, the ASU IAC delivered data-driven assessments and actionable recommendations to improve operational sustainability and reduce energy consumption across diverse industrial sectors. https://iac.engineering.asu.edu

Dr. Villalobos established and directed the Center for Electronics Manufacturing at the University of Texas at El Paso, focusing on applied research and industry collaboration to resolve pressing issues in electronics assembly.

Sponsors of Dr. Villalobos' research include the Foundation for Food and Agricultural Research, National Science Foundation, the US Department of Energy, Texas Advanced Technology Program, the Arizona Dept. of Transportation, US Army, the US Department of Homeland Security, Howard G. Buffett Foundation. He was the recipient of the 1993 IIE Doctoral Dissertation Award and a 1995 NSF Career Grant. In 2016 he was awarded a Fulbright Scholarship to conduct educational and research activities in Chile.

Wednesday — March 11, 2026
2:30 PM - 3:30 PM

Memorial Student Union, ASU Tempe Campus - 2nd floor, **Arizona Ballroom**

2nd Annual ASTFE Thermal Hydraulics Competition: Heat Exchanger Design
Sponsored by Heat Transfer Research, Inc.

The 11th Annual Thermal and Fluids Engineering Conference (TFEC) is set for March 2026 at Arizona State University. All students currently enrolled in a university degree program are invited to complete a heat exchanger design according to the specifications outlined in *Design a Compressor Intercooler*.

A panel of international heat exchanger experts in industry will evaluate the merits of each submission. **Six submissions—the top three designs from undergraduate-led teams and from graduate-led teams—will be awarded cash prizes: first place, US$1000; second place, US$850; and third place, US$650**.

Kevin Farrell, PhD, PE, Heat Transfer Research, Inc.

Wayne Strasser, PhD, PE, Libery University

Tuesday — March 10, 2026
11:15 AM - 12:45 PM

Memorial Student Union, ASU Tempe Campus - 2nd floor, **Turquoise Ballroom**

ASTFE - TFEC2026 Student Poster Session

Let's showcase our innovative ideas and cutting-edge research at the ASTFE TFEC2026 11th Thermal and Fluids Engineering Conference through our posters!

Moderator: Hamidreza Najafi, Florida Institute of Technology

Speakers: Rajendra Kumar, Karlsruhe Institute of Technology; Estefania Solano Calderon, New Mexico State University; Andrea Gallegos Quintana, New Mexico State University; Andrew Fix, University of Texas at Austin; Parker King, ASU; Anusree Sen, Texas A&M University; Anusree Sen, Texas A&M University

Tuesday — March 10, 2026
5:45 PM - 6:45 PM

Memorial Student Union, ASU Tempe Campus - 2nd floor, **Arizona Ballroom hallway**

National Science Foundation

Generous financial support from

National Science Foundation (NSF)

is gratefully acknowledged.

This funding provided support for many students and early career faculty/ researchers to attend the conference.

ASTFE
American Society of Thermal and Fluids Engineers

11TH Thermal and Fluids Engineering Conference (Hybrid)

March 9-12, 2026
www.astfe.org/tfec2026/

Fundamentals and Applications of Machine Learning in Thermal Management and Heat Transfer Technologies

WORKSHOP OUTLINE

PART 1

The first half of this short course will focus on fundamentals of machine learning tools. Several aspects of using machine learning tools relevant to thermophysics and thermal management will be described in more detail.

PART 2

The second portion of this short course will focus on applications. It will begin with a discussion of strategies for framing the modeling and organizing data for use of machine learning in an application. That initial discussion will be followed by a presentation of specific examples of ways machine learning can be used to enhance research and development for thermal management and heat transfer technologies.

CLOSING DISCUSSION

The final 20 minutes or so of the course will be dedicated to some closing remarks and an opportunity for participant questions and discussion.

MARCH 9, 2026

In person at Arizona State University and online virtual in Whova/Zoom (from 9 AM to 1 PM)

Memorial Student Union, ASU Tempe Campus - 2nd floor, Plata

Van P. Carey

A. Richard Newton Chair in Engineering

Distinguished Professor of Mechanical Engineering

ASTFE

American Society of Thermal and Fluids Engineers

11TH Thermal and Fluids Engineering Conference (Hybrid)

March 9-12, 2026

www.astfe.org/tfec2026/

MODELING AND SIMULATION OF HEAT TRANSFER AND THERMOFLUIDIC SYSTEMS WITH SIMSCAPE FLUIDS

WORKSHOP OUTLINE

Module 1: Introduction to Simulink, Simscape, and Simscape Fluids

Module 2: Fundamentals Simulation: Heat transfer through solid geometries

Module 3: Fundamentals Simulation: Thermal exchange in piping systems

Module 4: Applied Systems: Heat exchanger modeling

Module 5: Applied Systems: EV battery cooling system design

Module 6: Applied Systems: Importing fluid properties from REFPROP/CoolProp

Module 7: Advanced topics: Matching heat exchangers with performance data

Module 8: Advanced topics: Simulating complex geometries and varying operating conditions

MARCH 9, 2026
Online virtual in Whova/Zoom (from 9 AM to 1 PM)

Mehdi Vahab
Academic Manager for Mechanical and Aerospace Engineering at MathWorks

Jon Loftin
Senior Customer Success Engineer at MathWorks

ASTFE
American Society of Thermal and Fluids Engineers

11TH Thermal and Fluids Engineering Conference (Hybrid)

March 9-12, 2026
www.astfe.org/tfec2026/

INTRODUCTION TO MODERN COMPUTATIONAL FLUID DYNAMICS

WORKSHOP OUTLINE

Lecture 1: Brief History & Governing Equations

Lecture 2: The Finite Volume Method & Application to 1D Equations

Lecture 3: Basics of Numerical Analysis & Matrix Solvers

Lecture 4: Navier Stokes Equations, Pressure Projection & SIMPLE Method

Lecture 5: Density Based Methods

Lecture 6: Turbulence Modeling

Lecture 7: Environmental Flows

Lecture 8: CFD of the Future: Adaptive Grids, Meshless

Lecture 9: CFD of the Future: AI & Machine Learning

Lecture 10: Models & Reality

MARCH 9, 2026

In person at Arizona State University and online virtual in Whova/Zoom (from 9 AM to 4 PM)

Memorial Student Union, ASU Tempe Campus - 2nd floor, Chrysocolla

Dr. Akshai Runchal

President and Founding Partner, ACRi

ASTFE

American Society of Thermal and Fluids Engineers

11TH Thermal and Fluids Engineering Conference (Hybrid)

March 9-12, 2026

www.astfe.org/tfec2026/

ASTFE
American Society of Thermal and Fluids Engineers

11TH THERMAL AND FLUIDS ENGINEERING CONFERENCE (Hybrid)

In person at Arizona State University, Tempe, AZ, USA
And partially online virtual via Zoom and Whova

9-12 MARCH 2026

www.astfe.org/tfec2026/

ENGINEERING EDUCATION: PERSPECTIVES FROM INDUSTRY LEADERS AND ACADEMIC EXPERTS

This dynamic panel brings together top industry leaders and academic experts to explore how we can better prepare engineering graduates for real-world challenges. Attendees will gain firsthand insights from distinguished panelists

Panel Moderator: **Nesrin Ozalp**, *Professor and Department Chair, Illinois State University*

NICOLE R. WESLEY
Manufacturing Engineering Manager, Caterpillar

JARED OLSEN
Director of Launch and Execution Engineering, Stellantis (Chrysler)

MOSTAFA ABUSEADA
Senior Test Engineer, Tesla

JAMES MIDDLETON
Professor, Arizona State University

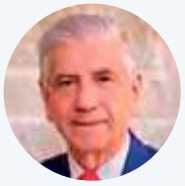
Tuesday — March 10, 2026
9:45 AM - 11:00 AM

Memorial Student Union, ASU Tempe Campus - 2nd floor, **Arizona Ballroom**

PANEL ON THE FUTURE OF THERMOFLUIDS R&D

What are future directions for thermal and fluids engineering research? Where can our field have the greatest impact? Join this far-reaching discussion involving distinguished academic and industrial panelists to explore what might be the next big breakthroughs!

Panel Moderator: **Patrick Phelan**, *Professor, Arizona State University*



ZAHID AYUB
Chief Technical Officer, Isotherm, Inc.

ANDREW MAYNARD
Professor, Arizona State University

RAVI PRASHER
Chief Technology Officer, Bloom Energy

ASHWANI GUPTA
Distinguished University Professor, University of Maryland

Wednesday — March 11, 2026
9:30 AM - 10:45 AM

Memorial Student Union, ASU Tempe Campus - 2nd floor, **Arizona Ballroom**

FUNDING OPPORTUNITIES FOR ADVANCEMENTS IN THERMAL AND FLUID ENGINEERING

This panel brings together program leaders to provide insights into current and emerging funding opportunities relevant to the thermal and fluid engineering community. Panelists will discuss research priorities, proposal evaluation perspectives, and strategies for developing competitive submissions across fundamental, applied, and translational research programs. Attendees will gain practical guidance on aligning research ideas with agency priorities, understanding review criteria, and navigating common proposal challenges. The panel will begin with brief remarks from each panelist, followed by an open Q&A session designed to encourage interaction and discussion with conference participants.

DR. RONALD D. JOSLIN

Program Director, Fluid Dynamics, U.S. National Science Foundation

DR. FANGYU CAO

Acting Program Director, Thermal Transport Processes, U.S. National Science Foundation

DR. JIN WEN

Chair of ASHRAE's Research Administration Committee, Professor and Department Head of Architectural Engineering, Pennsylvania State University

Panel Moderator:
Hamidreza Najafi, *Florida Institute of Technology*

Thursday — March 12, 2026
9:30 AM - 10:45 AM

Memorial Student Union, ASU Tempe Campus - 2nd floor, **Arizona Ballroom**

ASTFE
AMERICAN SOCIETY OF
THERMAL AND FLUIDS ENGINEERS

Activities at TFEC 2026

MARCH 9-12, 2026

DREAMSCAPE LEARN

Tuesday, March 10, Depart Memorial Union at 10:15 AM for 10:30 - 11:30 tour
Wednesday, March 11, Depart Memorial Union at 10:15 AM for 10:30 - 11:30 tour

Limited to 12 participants

Sign-up at the conference registration desk or via Whova app
More info: https://dreamscapelearn.asu.edu/

ANDI

Tuesday, March 10, Depart Memorial Union at 12:40 PM; tour lasts until 1:30 PM

ANDI, the world's first indoor-outdoor breathing, sweating and walking thermal manikin.
Limited to 30 participants

Sign-up at the conference registration desk or via Whova app
More info: https://www.kjzz.org/the-show/2025-08-26/sweating-manikin-helps-asu-researchers-learn-how-to-make-working-in-the-heat-safer

CENTER FOR NEGATIVE CARBON EMISSIONS

Tuesday, March 10, Depart Memorial Union at 4:15 PM for 4:30 - 5:30 tour

We are advancing technology to capture carbon dioxide directly from ambient air to address environmental degradation, improve air quality and ensure a sustainable, carbon-neutral energy future. Limited to 12 participants.

Sign-up at the conference registration desk or via Whova app
More info: https://globalfutures.asu.edu/cnce/

ASU CAMPUS TOUR

Thursday, March 12, Depart Memorial Union at 11:00 AM for 11:00 - 12:00 noon tour

Limited to 15 participants

Sign-up at the conference registration desk or via Whova app
More info: https://visit.asu.edu/

Monday — March 9, 2026

Time	Session	Room	Presenter
9:00 AM - 1:00 PM	**Course on Fundamentals and Applications of Machine Learning in Thermal Management and Heat Transfer Technologies**	Memorial Student Union, ASU Tempe Campus - 2nd floor, Plata	**Van P. Carey** A. Richard Newton Chair in Engineering Distinguished Professor of Mechanical Engineering
9:00 AM - 1:00 PM	**Course on Modeling and Simulation of Heat Transfer and Thermofluidic Systems with Simscape Fluids**	Online virtual in Whova/Zoom	**Mehdi Vahab** Academic Manager for Mechanical and Aerospace Engineering at MathWorks **Jon Loftin** Senior Customer Success Engineer at MathWorks
9:00 AM - 4:00 PM	**Course on Introduction to Modern Computational Fluid Dynamics**	Memorial Student Union, ASU Tempe Campus - 2nd floor, Chrysocolla	**Akshai Runchal** President and Founding Partner, ACRi
12:00 PM - 6:00 PM	**Conference Registration**	Memorial Student Union, ASU Tempe Campus - 2nd floor, Arizona Ballroom hallway	
12:00 PM - 1:00 PM	**ASTFE Board of Directors meeting (closed door)**	Memorial Student Union, ASU Tempe Campus - 2nd floor, Rincon	
1:00 PM - 2:00 PM	**ASTFE Executive Committee meeting (closed door)**		
2:00 PM - 3:00 PM	**Break**		
3:00 PM - 4:00 PM	**ASTFE Board of Directors and Executive Committee joint meeting (closed door)**	Memorial Student Union, ASU Tempe Campus - 2nd floor, Rincon	
4:00 PM - 5:00 PM	**ASTFE Board of Directors and Executive Committee joint meeting (open door)**		
5:00 PM - 7:00 PM	**Welcome Reception** (Associate Dean Patrick Phelan, *Arizona State University*; Lorenzo Cremaschi, *President of ASTFE*; Jon Longtin, *Chair of ASTFE Executive Committee*, Huseyin Bostanci, *Technical Program, Conference Tools, Venue, Events Overview*; Pat Phelan on *NSF funding*; Akshai Runchal: *Brief on the Course on Intro to Modern CFD*; Van Carey: *Course on Fundamentals and Applications of Machine Learning*; Medhi Vahab and Jon Loftin: *Course on Modeling and Simulation*; Ashwani Gupta: *Intro on IJECE journal*; Wilson Chiu: *Intro on CTS journal*; Exhibitors and Sponsors: *Begell House, publishers, NSF, ASU*)	Memorial Student Union, ASU Tempe Campus - 2nd floor, Turquoise Ballroom	

Tuesday — March 10, 2026

Time	Session	Room	Title	Presenter
8:00 AM - 10:00 AM	**Breakfast and coffee**			
8:00 AM - 8:30 AM	**Welcome Address** **Opening Remarks** **Day 1 Announcements**	Memorial Student Union, ASU Tempe Campus - 2nd floor, Arizona Ballroom	Patrick Phelan, *Arizona State University*; Lorenzo Cremaschi, *President of ASTFE*, Huseyin Bostanci, *Technical Program, Conference Tools, Venue, Events Day Schedule*	
8:30 AM - 9:30 AM	**Plenary Lecture 1**	Memorial Student Union, ASU Tempe Campus - 2nd floor, Arizona Ballroom	**The Power of Partnerships in Advancing Fundamental Research and Technology**	**Dr. Suresh Garimella,** University of Arizona **Moderator: Patrick Phelan,** ASU
9:30 AM - 9:45 AM	**Break**			
9:45 AM - 11:00 AM	**PANEL 1** **Moderator:** **Nesrin Ozalp** Illinois State University	Memorial Student Union, ASU Tempe Campus - 2nd floor, Arizona Ballroom	**Engineering Education: Perspectives from Industry Leaders and Academic Experts**	**Nicole R. Wesley,** Caterpillar **Jared Olsen,** Stellantis (Chrysler) **Mostafa Abuseada,** Tesla **James Middleton,** ASU
10:15 AM - 11:30 AM	**Lab Tour**	Depart Memorial Union	**Dreamscape Learn at 10:15 AM for 10:30 - 11:30 tour** (Limited to 12 participants) https://dreamscapelearn.asu.edu/	Sign-up at the registration desk
11:00 AM - 11:15 AM	**Break**			
Technical Session 1				
Morning SESSIONS				
11:15 AM - 12:45 PM	**SESSION 1A** **ID: Experimental Methods/Tools in Fluid Mechanics and Heat/ Mass Transfer-1** **Moderator:** **Alexander Brown** Sandia National Lab	Memorial Student Union, ASU Tempe Campus - 2nd floor, Gila	61413 - Temperature measurement of droplet evaporation on a flat plate using optical fiber sensor	Lee YeonGyu Jeonbuk National University
			61634 - Preliminary Study on the Effect of Fluid Velocity on Morphological Development of Lettuce (Lactuca Sativa) Using Nutrient Film Technique (NFT)	Tristen Hogan Old Dominion University
			61764 - Experimental Investigation of Boiling Heat Transfer in Triply Periodic Minimal Surfaces	Alex Larrivee Mainstream Engineering
			61765 - Experimental Investigation by a One-inch-wide Grounded Electrode EHD Pump	A K M Monayem Mazumder Saginaw Valley State University
			62877 - Systematic Thermal Studies of Si Thin Films with Varying Surface Roughness	Moh'd Allouzi The University of Arizona

Time	Session	Room	Title	Presenter
11:15 AM - 12:45 PM	**SESSION 1B** **ID: Computational Methods/ Tools in Thermal-Fluid Systems-1** **Moderator:** **Aki Runchal** ACRi	Memorial Student Union, ASU Tempe Campus - 2nd floor, Graham	61182 - Effect of Uncertainties in the Simulation of Thermal Processes	Yogesh Jaluria Rutgers University
			61756 - Numerical and Experimental Analysis of Disc Heat Convection	Derli Dias do Amaral Junior Sam Houston State University
			62010 - Converging-Diverging Nozzle Shock Wave Validation	Jonathan Sugarman Liberty University
			62448 - Validation of a coupled Overset and Smoothing mesh update method for Fluid-Structure Interaction	Kent Gingerich Liberty University
			62829- Multiscale Modeling of Laser-Induced Bubble Formation and Early-Stage Fluid Response Across Femtosecond—Nanosecond Pulse Regimes	Ben Xu University of Houston
11:15 AM - 12:45 PM	**SESSION 1C** **TS: Electronics Cooling-1** **Moderator:** **Murat Barisik** University of Tennessee Chattanooga	Memorial Student Union, ASU Tempe Campus - 2nd floor, Santa Cruz	62905 - Interpreting Boiling Interface Dynamics with BubbleID and SeqReg: A Multimodal Machine Learning Approach	Mohammad Ishraq Hossain University of Arkansas
			62844 - Experimental Investigation of Single-phase Immersed Jet Impingement for High-Power Electronics Cooling	Kai Luo University of Illinois
			62846 - Adjusting the Heater-Medium Phonon Dispersion Mismatch to Dramatically Enhance the Thermal Transport near Nanosized Heaters	Masoud Aghaamini University of Arizona
			61762 - Thermal Management Approaches for Emerging Electric Vehicle Power Inverter Configurations	Huseyin Bostanci University of North Texas
11:15 AM - 12:45 PM	**SESSION 1D** **TS: Heat Transfer in Multiphase Flows-1** **Moderator:** **Shaur Humayun** Cummins, Inc.	Memorial Student Union, ASU Tempe Campus - 2nd floor, Pinal	61412 - Optical fiber-based measurement of enhanced flow boiling heat transfer on a micro-pillar structure	Hyeon Taek Nam Jeonbuk National University
			61417 - Optical Fiber Sensing of Pool Boiling Surface Temperatures on Flat and Micro-Pillar Structures Surfaces	Minkyu Park Jeonbuk National University
			61477 - Unified Droplet Impingement Behavior on an Aircraft Wing via Stokes Number in Atmospheric Icing	Arash Shad University of Florida
			61483 - A Unified Framework for Rime Ice Accretion with Variable Properties and Transition to Glaze Ice	Hashnayne Ahmed University of Florida
			61485 - Direct Numerical Simulation of Non-Uniform Frost Deposition on Fin-and-Tube Freezer Coils in Turbulent Flow	Mahsa Farzaneh University of Florida
11:15 AM - 12:45 PM	**SESSION 1E** **TS: Aerospace Applications** **Moderator:** **Laura Almara** Texas State University	Memorial Student Union, ASU Tempe Campus - 2nd floor, Yuma	60367 - Transonic Airflow Over a Truncated Nose Cone with Vortex Shedding	Tin-Charles Ogbozor SIUE
			61400 - Heat Flux Estimation from Thermocouple Data in a GOX/GCH4 Capacitive Rocket Engine Combustion Chamber	Marco Romano Delogu Politecnico di Torino
			62011 - Fatigue and Cyclic Loading in Aircraft Engine Turbomachinery	Sarah Hilliard Liberty University
			62906 - Immersion Cooling of Motor End Windings for Electrified Aircraft Propulsion	Daniel Curl University of Arkansas
			61487 - Verification of Convergent-Divergent Nozzle Designs in Propulsion Aerospace Applications	Noah Estrada Texas A&M University Kingsville
11:15 AM - 12:45 PM	**SESSION 1F** **FD: Measurement and Modeling of Environmental Flows-1** **Moderator:** **Thomas Nevins** Sandia National Lab	Memorial Student Union, ASU Tempe Campus - 2nd floor, Cochise	61440 - Resolving Near-Wall Heat Fluxes in the Atmospheric Boundary Layer.	Michael Edgemon University of South Florida
			61611 - Preliminary simulation of contrails from ammonia-powered airplanes	Torge Bohlken University of South Florida
			62873 - Measuring Human Convection in Turbulent Outdoor Flows Using Human-Equivalent Cylindrical Sensor	Alyssa Payne ASU
			61428 - Investigating the impact of thermal dispersion on the instability of buoyancy-driven flow in a Darcy-Forchheimer porous medium	Hemalatha Veeduluri NIT Warangal
			61497 - Cross-Model Verification of Wall-Bounded Flows using Finite-JAX and ANSYS Fluent	Arturo Rodriguez Texas A&M University Kingsville
11:15 AM - 12:45 PM	**SESSION 1G** **ES: Heat Pumps and Innovative Cooling and Heating Systems** **Moderator:** **Titan Paul** University of South Carolina Aiken	Memorial Student Union, ASU Tempe Campus - 2nd floor, La Paz	60629 - Experimental Validation of Fluid Temperatures in a Modelica Model of a District Energy Waste Heat Recovery System	Olamide Opadokun, Yong Tao Cleveland State University
			61138 - Examination of the factors and interactions that impact performance in an evaporatively cooled desiccant air conditioning system	Bryce Cox University of Wisconsin Platteville
			61232 - Investigation of the Performance of Refrigerant Injection Systems in Heating and Air Conditioning Systems	Mina Mikhaeel Oak Ridge National Lab
			61281 - Hybrid Geothermal Heat Pump for Single Residences	Joshua Richey Mainstream Engineering
			61518 - Thermal performance analysis of PCM-integrated model roofs with different solar reflectance under outdoor weather conditions	Jae Hyun Kim NIST

Time	Session	Room	Title	Presenter
11:15 AM - 12:45 PM	**SESSION 1H** **ES: Energy Systems-1** **Moderator:** **Lalhmingsanga Hauchhum** National Institute of Technology Mizoram	Memorial Student Union, ASU Tempe Campus - 2nd floor, Coconino	61471 - Investigating Dynamic Adsorption-Desorption Kinetics for the Optimal Design of Adsorption Heat Exchangers	Mohd Abdullah Khan IIT Kharagpur
			61662 - A Comparative Analysis of Dry, Wet, and Hybrid Cooling Technologies for Concentrating Solar Power Plants	Hakeem Niyas RGIPT
			61351 - Energy, Exergy, and Life Cycle Perspectives on Bamboo Biomass Gasification for Sustainable Energy Production	Lalhmingsanga Hauchhum NIT Mizoram
			60057 - Significance of Energy Flow Directions in Thermo-Fluid Study and Application	Yongjian Gu US Merchant Marine Academy
			62936 - Erosive Wear in Particle-based Concentrated Solar Power Systems Using the Discrete Element Method	Donagh Palmer Western Washington University
11:15 AM - 12:45 PM	**STUDENT DESIGN COMPETITION** **Intercooler for ASTFE Design Competition** **Moderator:** **Kevin Farrell,** HTRI	Memorial Student Union, ASU Tempe Campus - 2nd floor, Turquoise Ballroom	61492 - Design Optimization of an Air-to-Water Compressor Intercooler with Shape Optimized Non-Round Tubes	Brian O'Malley UMD Center for Environmental Energy Engineering
12:40 PM - 1:30 PM	**Lab Tour**	Depart Memorial Union	**ANDI, the world's first indoor-outdoor breathing, sweating and walking thermal manikin** (Limited to 30 participants) https://www.kjzz.org/the-show/2025-08-26/sweating-manikin-helps-asu-researchers-learn-how-to-make-working-in-the-heat-safer	Sign-up at the registration desk
12:45 PM - 1:00 PM	**Break**			
1:00 PM - 2:00 PM	**Luncheon** **ASTFE Technical Committee Meetings**	Memorial Student Union, ASU Tempe Campus - 2nd floor, Gila	**Thermal Sciences Technical Committee (Chair: Huseyin Bostanci,** University of North Texas**; Vice-chair: Like Li,** University of Central Florida**)**	
		Memorial Student Union, ASU Tempe Campus - 2nd floor, Graham	**Fluid Dynamics Technical Committee (Chair: Kevin Anderson,** Calif. State Polytechnic University, Pomona**; Vice-chair: Aarthi Sekaran,** Suny Polytechnic Institute**)**	
		Memorial Student Union, ASU Tempe Campus - 2nd floor, Santa Cruz	**Energy and Sustainability Technical Committee (Chair: Sylvie Lorente,** Vilanova University**; Vice-chair: Sean Orchuk,** Interlock Energy**)**	
		Memorial Student Union, ASU Tempe Campus - 2nd floor, Pinal	**Ethics and Education Technical Committee (Chair: Shima Hajimirza,** Stevens Institute of Technology**)**	
		Memorial Student Union, ASU Tempe Campus - 2nd floor, Yuma	**ASTFE Student Committee (Chair: Bengisu Sisik,** George Washington University**)**	
2:00 PM - 2:15 PM	**Break**			
2:15 PM - 3:00 PM	**Keynote Sessions in Parallel**	Memorial Student Union, ASU Tempe Campus - 2nd floor, Arizona Ballroom	**The Heat Pump: a "Swiss Army Knife" that Heats, Cools, Cleans, Conserves and Preserves**	**Srinivas Garimella** Georgia Institute of Technology **Moderator: Nesrin Ozalp** Illinois State University
3:00 PM - 3:45 PM			**Microchannel-based Cooling Technologies for the AI Era**	**Sung Jin Kim** Korea Advanced Institute of Science & Technology **Moderator: Beomjin Kwon**, ASU
2:15 PM - 3:00 PM	**Keynote Sessions in Parallel**	Memorial Student Union, ASU Tempe Campus - 2nd floor, Turquoise Ballroom	**High Concentration Solar - Prototype Development and Test at Southwest Solar Technology LLC**	**Herb Hayden** Southwest Solar Technology, LLC **Moderator: Patrick Phelan,** ASU
3:00 PM - 3:45 PM			**Holistic Rack-To-Processor Power and Thermal Co-Design for Future Servers and Data Centers**	**Nenad Miljkovic** University of Illinois at Urbana-Champaign **Moderator: Tianyu Yang**, ASU
3:45 PM - 4:00 PM	**Break**			

Technical Session 2				
Afternoon SESSIONS				
Time	**Session**	**Room**	**Title**	**Presenter**
4:00 PM - 5:30 PM	**SESSION 2A** **ID: Experimental Methods/Tools in Fluid Mechanics and Heat/ Mass Transfer-2** **Moderator:** **Badr Albeshri,** University of Florida	Memorial Student Union, ASU Tempe Campus - 2nd floor, Gila	62899 - Dear ANDI: what should I wear in the Arizona inferno? Testing extreme heat clothing performance using sun-exposed thermal manikin within a portable wind tunnel	Faisal Abedin Arizona State University
			63275 - A low-cost thermal-conductivity sensor for CO2 measurements during anesthesia	Jon Longtin Stony Brook University
			62816 - Understanding Al7075/Al6061 Dissimilar Metal Joints Formed Using Additive Friction Stir Deposition	Congyuan Zeng Southern University and A&M College
			62916 - Automation of Zeolite UV-Cured Porous Adsorbents for Efficient Gas Separation	Jacob Sequeira Florida Institute of Technology
			61730 - A Novel Inflatable Rescue Device for Borewell Accident Mitigation	Sadham Usean Ramasamy IIT Madras
4:00 PM - 5:30 PM	**SESSION 2B** **ID: Computational Methods/ Tools in Thermal-Fluid Systems-2** **Moderator:** **Murat Barisik,** University of Tennessee Chattanooga	Memorial Student Union, ASU Tempe Campus - 2nd floor, Graham	62519 - Optimizing Wordle Strategy Through System Dynamics Modeling	Christina Aintablian Liberty University
			62012 - Local Hardware Benchmarking in the FLUID Lab; the Alternative to Cloud Computing	Caleb Hellmund Liberty University
			61446 - Computational Modeling of Thermal Field-Flow Fractionation: Limitations of the Talbot Model for Liquid-Phase Nanofluids	Udit Sharma Tennessee Technological University
			62259 - An Image-Based Investigation of 2D Axisymmetric and 3D Models for the Wave Augmented Varicose Explosions Atomizer	Gabriel Shreve Liberty University, F.L.U.I.D. Group
			62947 - Dynamic Energy Simulation for A Tiny House Targeting Zero-Energy Building Standards	Yusuf Kara Arizona State University
4:00 PM - 5:30 PM	**SESSION 2C** **TS: Electronics Cooling-2** **Moderator:** **Huseyin Bostanci,** University of North Texas	Memorial Student Union, ASU Tempe Campus - 2nd floor, Santa Cruz	62851 - Design and Analysis of Dendritic Configurations for Cold Plates Based on Minimizing Global Thermal Resistance	Jose Felix Guil-Pedrosa, Luis Miguel Garcia Gutierrez Universidad Carlos III de Madrid
			62903 - Real-Time Thermal Digital Twin for Electronics Cooling Using Physics-Informed Graph Neural Networks	Daniel Curl University of Arkansas
			62904 - Role of Vapor Film Stability in Boiling Hysteresis at Sub-Atmospheric Pressures	Mohammad Ishraq Hossain University of Arkansas
			61701 - Heat Transfer in Passive Hybrid Thermal Management System for Small Untethered Sensor	Thomas Nevins Sandia National Laboratory
4:00 PM - 5:30 PM	**SESSION 2D** **TS: Electronics Cooling-3** **Moderator:** **Mubashar Ashraf,** Virginia Tech	Memorial Student Union, ASU Tempe Campus - 2nd floor, Pinal	60946 - Heat Transfer of Water in a 3D-printed Miniature Heat Sink at Low Reynolds Numbers	Mahyar Pourghasemi Western New England University
			61506 - Freeze-cast copper wicks with groove-like structures for enhancing capillary flow rate in heat pipes/vapor chambers	Joseph Sheppard University of Maryland Baltimore County
			62924 - Global stability of Bénard-Marangoni convection in superposed fluid and porous layers	Tanya Rastogi Malaviya National Institute of Technology Jaipur
			61442 - Physics-Informed Neural Networks for Reaction Rate Prediction in Porous Media Combustion: Effects of Linear Porosity Variation on CH_4-Air Flame Characteristics	Mahmood Mousavi Embry-Riddle Aeronautical University
4:00 PM - 5:30 PM	**SESSION 2E** **TS: Heat Transfer in Multiphase Flows-2** **Moderator:** **Ben Xu,** University of Houston	Memorial Student Union, ASU Tempe Campus - 2nd floor, Yuma	61605 - Tuning micro/nanostructures of additively manufactured CuCrZr for enhanced pool boiling	Leymus Lum Nanyang Technological University
			61747 - Lattice Boltzmann Method Simulation of Oscillating Flow and Condensation in Natural Porous Media	Ben Xu University of Houston
			61797 - Predicting Heat Transfer in High-Power Linear Colliders Using Multi-Site Nucleate Boiling Simulations	Ashwani Kumar Pal Florida State University and Florida A & M University
			61987 - Defining the Benchmarks: Unified Analysis of Fluid Anomalies at Critical Point	Laura Almara Texas State University
			61481- A Turbulence-Informed Euler-Lagrange Framework for Modeling Droplet Impingement on Aircraft Wings	Arash Shad University of Florida
4:00 PM - 5:30 PM	**SESSION 2F** **TS: Flow and Heat Transfer in Materials Processing Science and Manufacturing** **Moderator:** **David Hwang,** Stony Brook University	Memorial Student Union, ASU Tempe Campus - 2nd floor, Cochise	61072 - The influence of the oxide layer on the intensity of heat transfer during spray cooling of iron samples at high temperatures.	Miroslav Raudensky Brno University of Technology
			61384 - The Sensitivity of Plasma Spray Predictions to Particle Absorptivity	Alexander Brown Sandia National Labs
			62919 - Porous Adsorbent Coatings using Microwave-Assisted Fermentation	Jakia Sharmin Mim Florida Institute of Technology
			63237 - Thermal Conductivity Trends Across Nanoparticle Sizes — From Colloidal Nanocrystals Down to Atomically-Precise Magic-Sized Cluster Particles	Robert Wang Arizona State University
			61761 - Investigation of laser scribing mechanisms for metallic thin films on a flexible substrate towards photovoltaic solar module manufacturing	David Hwang Stony Brook University

Time	Session	Room	Title	Presenter
4:00 PM - 5:30 PM	**SESSION 2G** **FD: Multiphase Flows-1** **Moderator:** **Igor Matteo Carraretto,** Politecnico di Milano	Memorial Student Union, ASU Tempe Campus - 2nd floor, La Paz	60546 - Characterization of Three-Phase Air-Water-Oil Flows in a Downward Inclined Pipe: Pressure Gradient and Interfacial Wave Parameters	Igor Matteo Carraretto Politecnico di Milano
			61119 - Numerical Characterization of Microgravity Bubble Separation Mechanisms in Open Wedge Channel Flows Against ISS CCF Informatics Benchmarks	Tyler Hatch, Yong Tao Cleveland State University
			61259 - Improved Theoretical and Numerical Approach on the Instability of the Film Flow on an Inclined Surface with Imposed Shear	June Kee Min, Seungjin Lee, Seongho Park Pusan National University
			61406 - A Compressible Model of Double-Flow Focusing Ethanol-Water Micro-Jets	Rizwan Zahoor University of Ljubljana
4:00 PM - 5:30 PM	**SESSION 2H** **ES: Sustainable Buildings and Cities** **Moderator:** **Titan Paul,** University of South Carolina Aiken	Memorial Student Union, ASU Tempe Campus - 2nd floor, Coconino	61300 - A Self-Regulated Photothermal Anti-/Deicing Film for All-Season Applications	Jiayu Du, Chi Yan TSO City University of Hong Kong
			62799 - Integrated Analysis of Grid Interaction and Energy Autonomy in a Colorado Urban District	Amaru Gonzalez Villanova University
			62840 - Economic Benefit to the Utility Provider from Reduced Grid Burden by Bidirectional EV Load Shifting	Hohyun Lee San Jose State University
			62875 - Thermal physical—digital human twins for aiding decisions around sustainable urban living in extreme heat	Konrad Rykaczewski Arizona State University
			63286 - MaRTy3D+: An Advanced Real-Time Heat Strain Monitoring System with Integrated Thermoregulatory Modeling	Muhammad Abdullah Arizona State University
4:15 PM - 5:30 PM	**Lab Tour**	Depart Memorial Union	**Center for Negative Carbon Emissions at 4:15 PM for 4:30 - 5:30 PM tour** (Limited to 12 participants) https://globalfutures.asu.edu/cnce/	Sign-up at the registration desk
5:30 PM - 5:45 PM	**Break**			
			Poster Session	
5:45 PM - 6:45 PM	**POSTER SESSION** **Moderator:** **Hamidreza Najafi** Florida Institute of Technology	Memorial Student Union, ASU Tempe Campus - 2nd floor, Arizona Ballrooms hallway	62926 - Performance Evaluation of 3D-Printed Polymer Heat Exchangers for Pulse Tube Cryocoolers	Rajendra Kumar Karlsruhe Institute of Technology
			62862 - Passive Anti-Icing Performance of Superhydrophobic Surfaces under Static Freezing	Estefania Solano Calderon New Mexico State University
			62864 - Heat Transfer Measurement of Normal Jet Impingement by Phosphor Thermometry	Andrea Gallegos Quintana New Mexico State University
			61414 - Heat Pump-Assisted Vacuum Membrane Distillation for Liquid Desiccant Regeneration: A Thermodynamic Perspective	Andrew Fix University of Texas at Austin
			61421 - A New, Efficient Dehumidification Cycle Architecture: The Cyclic Dual Module Humidity Pump	Andrew Fix University of Texas at Austin
			63365 - Early Life Diurnal Thermal Performance of Cool Pavement Technologies: A Multi-Site Field Study	Parker King Arizona State University
			63377 - Electrochemical Corrosion Response of Aluminum Substrates Exposed to Silica Nanofluids and Additives (Surfactant)	Anusree Sen Texas A&M University
			63378 - The Role of the Sen–Banerjee Number (SB) for Predicting the Deviant Density Enhancements of Nanofluids	Anusree Sen Texas A&M University
6:45 PM - 7:30 PM	**Student Networking Session** **Moderator:** **Bengisu Sisik** George Washington University	Memorial Student Union, ASU Tempe Campus - 2nd floor, Arizona Ballroom		

Wednesday — March 11, 2026

Time	Session	Room	Title	Presenter
8:00 AM - 10:00 AM	**Breakfast and coffee**			
8:00 AM - 8:15 AM	**Day 2 Announcements**	Memorial Student Union, ASU Tempe Campus - 2nd floor, Arizona Ballroom	Opening by **Patrick Phelan,** ASU **Huseyin Bostanci:** Overview of Day 1 and Day 2 plan, Conference Tools, Venue and Events Announcements	
8:15 AM - 9:15 AM	**Plenary Lecture 2**	Memorial Student Union, ASU Tempe Campus - 2nd floor, Arizona Ballroom	**Engineering a Better Tomorrow: A Three-Horizon Roadmap for a Resilient World**	**Amit Sharma** Tata Consulting Engineers Limited **Moderator:** **Moderator: Patrick Phelan,** ASU
9:15 AM - 9:30 AM	**Break**			
9:30 AM - 10:45 AM	**PANEL 2** **Moderator:** **Moderator: Patrick Phelan,** ASU	Memorial Student Union, ASU Tempe Campus - 2nd floor, Arizona Ballroom	**Panel on the Future of Thermofluids R&D**	**Zahid Ayub** Chief Technical Officer, Isotherm, Inc. **Andrew Maynard** Professor, ASU **Ravi Prasher** Chief Technology Officer, Bloom Energy **Ashwani Gupta** University of Maryland
10:15 AM - 11:30 AM	**Lab Tour**	Depart Memorial Union	**Dreamscape Learn at 10:15 AM for 10:30 - 11:30 tour** (Limited to 12 participants) https://dreamscapelearn.asu.edu/	Sign-up at the registration desk
10:45 AM - 11:00 AM	**Break**			
Technical Session 3				
Morning SESSIONS				
11:00 AM - 12:30 PM	**SESSION 3A** **ID: Machine Learning and Artificial Intelligence in Thermo-Fluid Engineering-1** **Moderator:** **Aki Runchal,** ACRi	Memorial Student Union, ASU Tempe Campus - 2nd floor, Gila	61353 - Machine Learning-Based Model for Multiphase Flow Using Volume of Fluid Method: Air Injection into a Tank Filled with Liquid	Shahid Husain University of Limerick
			61437 - Combustion Chemistry Acceleration Using Neural Networks	Furkan Göçer Middle East Technical University
			61842 - Applications of AI Deep Learning by Multi-layer Perceptron and Kolmogorov-Arnold Networks based Physics-informed Neural Networks to Solve Partial Differwntial Equations	Frank D.L. Young National Taiwan University
			62083 - Spiking Neural Network Controlled Artificial Heart	Daniel Archer Liberty University
			62931 - Machine Learning-Guided Reparameterization of the TIP4P Water Model for Accurate Thermal and Electrical Property Predictions	Murat Barisik University of Tennessee Chattanooga
11:00 AM - 12:30 PM	**SESSION 3B** **ID: Flow and Heat Transfer in Biological Systems-1** **Moderator:** **Ben Xu,** University of Houston	Memorial Student Union, ASU Tempe Campus - 2nd floor, Graham	61225 - Buoyancy-Induced Convection in Early Earth Microbial Mats: Internal Heat Sources and Fissure-Enhanced Permeability	Gaurav Rajen Symbiotic Ecosystems LLC
			61410 - Beyond Simplified Models: Physiologically Realistic Determinants of Pressure Drop in Stenosed Artery Hemodynamics	Toshali Mandal University of Minnesota
			62230 - Analyzing CO2 Mixing in the Upper Airway During Asymmetric High Flow Therapy	Robert Kacinski Liberty University
			62868 - Humidity from Sweat Decreases Buoyancy Near Skin and Impedes Human Evaporative Cooling in Arid Heat	Shri Harri Viswanathan Arizona State University
11:00 AM - 12:30 PM	**SESSION 3C** **ID: Fundamentals in Fluid Flow and Heat/Mass Transfer-1; Flow and Heat Transfer in Biological Systems-2** **Moderator:** **Darshan Pahinkar,** Florida Institute of Technology	Memorial Student Union, ASU Tempe Campus - 2nd floor, Santa Cruz	61170 - Double-diffusive convection with gravitationally unstable temperature and concentration gradients in homogeneous and heterogeneous porous media	Chenglong Hu IWHR
			61293 - An Advanced Framework for Optimized Patient-Specific Cancer Therapy Planning	Pammi Raj Gupta IIT (BHU) Varanasi
			62013 - New phase diagrams with the boundary of liquid/supercritical liquid-like region Discovered	Vish Prasad University of North Texas
			61767 - Leveraging Fluid-Capacitance-Based Modeling of Airways for Digital Twin Development of Pulmonary Systems	Debjyoti Banerjee TAMU
			61768 - Computational Fluid Dynamics (CFD) Modelling of Turbulent Flows in a CT-based Actual Healthy Human Lower Airway (G0-G4) Geometry to Aid Patients with Acute Respiratory Distres	Debjyoti Banerjee TAMU

Time	Session	Room	Title	Presenter
11:00 AM - 12:30 PM	**SESSION 3D** **TS: Heat Transfer in Multiphase Flows-3** **Moderator:** **Laura Almara,** Texas State University	Memorial Student Union, ASU Tempe Campus - 2nd floor, Pinal	61990 - A Mystery of Fluids: Discovery and Characterization of Universal Compressibility Points	Laura Almara Texas State University
			62640 - Cryogenic Pipe Chilldown Two-Phase Heat Transfer Correlations	Samuel Darr The Aerospace Corporation
			62871 - Microscale Fundamentals of Sweat Evaporation	Cibin Thomas Jose ASU
			61503 - Molecular Dynamics Analysis of Heat and Mass Transfer at Condensing Interfaces	Ahmet Ata Ersoy Southern Methodist University
			61423 - Progress on marangoni condensation heat transfer on single horizontal tube	Hafiz Muhammad Ali KFUPM
11:00 AM - 12:30 PM	**SESSION 3E** **TS: Heat/Mass Transfer Enhancement Techniques-1** **Moderator:** **Vikrant Aute,** University of Maryland	Memorial Student Union, ASU Tempe Campus - 2nd floor, Yuma	60624 - Condensation of Water on a Plain Downward-Facing Horizontal Surface of a Vapor Chamber	Hessam Taherian Advanced Cooling Technologies, Inc.
			61257 - Optimization of Thermal Management in Prismatic Lithium-Ion Batteries Using Shark Scale-Inspired Fins	Md Akter Hossain Bablu Tennessee Technological University
			61366 - A Novel Di-Electrophoretic Dehydration Method for Cellulose Fiber	Jonah Henry Auburn University
			61613 - Study of Thin Film Liquid Evaporation on Functionally Graded Nano-Structured Surfaces	Titan Paul University of South Carolina Aiken
11:00 AM - 12:30 PM	**SESSION 3F** **FD: Multiphase Flows-2** **Moderator:** **Shaur Humayun,** Cummins, Inc.	Memorial Student Union, ASU Tempe Campus - 2nd floor, Cochise	61409 - Influence of Nozzle Contact Angle on the Geometry of Gas-Accelerated Sheet Jets	Krištof Kovačič University of Ljubljana
			61553 - Compressible Model of Flow-Focused Micro-Jets in an Electric Field	Bor Zupan University of Ljubljana
			62220 - The Use of Porous Media to Augment Atomizer Optimization	Wayne Strasser Liberty University
			61432 - Viscous Effects on the Mixing and Dispersion of Buoyant MEG Jets	Pedro Machado NUEM - UTFPR
			61424 - Influence of Hydrate-Like Particles on Gas–Liquid Stratified-to-Slug Flow Pattern Transition	Moisés Neto Federal University of Technology–Paraná
11:00 AM - 12:30 PM	**SESSION 3G** **FD: Turbulent Flows** **Moderator:** **Shubham Rath,** Virginia Tech	Memorial Student Union, ASU Tempe Campus - 2nd floor, La Paz	60631 - Aerodynamic Drag Forces on Two Side-By-Side Flat Road Signs	Tin-Charles Ogbozor Southern Illinois University Edwardsville
			61451 - Planar Laser-Induced Fluorescence (PLIF) and Particle Image Velocimetry (PIV) of Turbulent Flow over a Permeable Bed	Zeeshan Memon Oregon State University
			62546 - Can Fluent Sufficiently Resolve Turbulence Via Direct Numerical Simulation In a Wavy Channel?	Owen Offman Liberty University
			62079 - Investigation of Turbulent Energy Dissipation of Plane Turbulent Wake Downstream of a Heated Cylinder	Emily Combs Liberty University
			61594 - Verification and Validation of RANS and URANS for Flow and Heat Transfer in Bluff-Body Crossflow: Round, Square, and Hexagonal Cylinders	Umran Uzen Texas A&M University
11:00 AM - 12:30 PM	**SESSION 3H** **ES: Energy Storage Systems** **Moderator:** **Mahyar Pourghasemi,** Western New England University	Memorial Student Union, ASU Tempe Campus - 2nd floor, Coconino	61251 - Thermal energy storage scale up challenges: thermochemical and PCM pathways development	Jaroslaw Zuwala Institute of Energy and Fuel Processing Technology
			61426 - Analysis of Sodium Acetate Trihydrate Segregation and Solidification Mechanisms via X-Ray Computed Tomography	Dario Guarda University of Padova
			61517 - Combined Effect of Copper Fins and Spherical Particle Additives on the Performance of a Silica Sand Sensible Heat Storage System	Saeed Tiari Widener University
			61718 - Electrical Conductivity Measurement at High Temperatures for Thermochemical Energy Storage Materials	Like Li University of Central Florida
			62859 - Experimental Analysis of Calcium Oxide Particle Conversion for Thermochemical Energy Storage	Antonio Soria-Verdugo Universidad Carlos III de Madrid
12:30 PM - 2:30 PM	**Buffet Luncheon**			
1:00 PM - 1:45 PM	**Keynote Luncheon Talk**	Memorial Student Union, ASU Tempe Campus - 2nd floor, Arizona Ballroom	**Scaling Excellence: Lessons from Designing a Comprehensive Engineering Enterprise**	**Kyle Squires** ASU **Moderator: Ryan Milcarek,** ASU
1:45 PM - 2:15 PM	**Awards (TFE Award, Best Paper, Best Reviewer)**	Memorial Student Union, ASU Tempe Campus - 2nd floor, Arizona Ballroom	**TFE Award, ERC Award, The ASTFE Fellows – moderator: Lorenzo Cremaschi,** Auburn University **TFEC 2026 Conference Chairs and Session Chairs – moderator: Jon Longtin,** Stony Brook University **TFEC 2026 Best Papers and Best Reviewers – moderator: Jon Longtin,** Stony Brook University	
2:15 PM - 2:30 PM	**Break**			

Time	Session	Room	Title	Presenter
2:30 PM - 3:30 PM	**TEC Talks** **Moderator:** **Konrad Rykaczewski,** ASU	Memorial Student Union, ASU Tempe Campus - 2nd floor, Arizona Ballroom	**Breaking the Ice: From Fundamentals to Next-Generation Ice-Shedding Surfaces**	**Hadi Ghasemi** University of Houston
			Engineering Thermal Materials for Advanced Electronics Packaging	**Amy Marconnet** Purdue University
			Radiative Cooling Paints and Elastomeric Coatings for Energy-efficient Buildings and Transportation	**Xiulin Ruan** Purdue University
			Modular and Expandable Refrigeration Capacity for Efficient Preservation of Perishable Goods	**J. Rene Villalobos** FreshKube Inc.
3:30 PM - 3:45 PM	**Break**			
3:45 PM - 4:30 PM	**Keynote Session in Parallel**	Memorial Student Union, ASU Tempe Campus - 2nd floor, Arizona Ballroom	**The Multiscale Transformation of Building and Energy Systems: From Micro to Macro; Impact in Modern Systems**	**Karma Sawyer** Pacific Northwest National Laboratory **Moderator: Patrick Phelan,** ASU
		Memorial Student Union, ASU Tempe Campus - 2nd floor, Turquoise Ballroom	**Fire Safety of Battery Energy Storage Systems**	**Jay P. Gore** Purdue University **Moderator: Robert Wang,** ASU
4:30 PM - 4:45 PM	**Break**			
Technical Session 4				
Afternoon SESSIONS				
5:00 PM - 6:30 PM	**SESSION 4A** **ID: Machine Learning and Artificial Intelligence in Thermo-Fluid Engineering-2** **Moderator:** **Saeed Tiari,** Widener University	Memorial Student Union, ASU Tempe Campus - 2nd floor, Gila	63349 - Physics Informed DeepONet Thermal Surrogate for 3D-IC Thermal Analysis	Ahmet Ata Ersoy Southern Methodist University
			61220 - Non-Destructive Prediction of Temperature Distribution in Apples During Cooling Using Machine Learning Models	Rishi Shrivastava Healthcare IT
			61490 - Numerical and Analytical Modeling of Heat Transfer in Current-Carrying Conductors using the Heat Equation implemented using Finite-JAX	Arturo Rodriguez Texas A&M University Kingsville
			62902 - Thermal Analysis of a High-Pressure Spatial Chemical Vapor Deposition (HPS-CVD) Reactor Using Computational Fluid Dynamic Techniques	Hooman Enayati Penn State Berks
			62977 - Physics-informed neural networks for inferring velocity from concentration fields in three-dimensional intersecting flows	Nagahiro Ohashi, Beomjin Kwon ASU
5:00 PM - 6:30 PM	**SESSION 4B** **TS: Heat Pipes; Heat Exchangers** **Moderator:** **Aminul Khan,** Northern Arizona University	Memorial Student Union, ASU Tempe Campus - 2nd floor, Graham	61311 - Numerical Study of Coupled EHD-MHD Control for Enhanced Liquid Metal Channel Flow	Udit Sharma Tennessee Technological University
			63235 - Thermochemical Heat Pipes for Long Distance Thermal Transport	Robert Wang ASU
			62787 - Numerical Analysis on the Thermal-Hydraulic Performance of an EV Heat Pump System using R1234yf/R290 with Octovalve Emulation Logic	SeungHun Oh Kongju National University
			62867 - Shell-and-Tube Heat Exchanger Module for Thermo-fluids Engineering Education	Aminul Khan Northern Arizona University
5:00 PM - 6:30 PM	**SESSION 4C** **TS: Heat/Mass Transfer Enhancement Techniques-2** **Moderator:** **Vikrant Aute,** University of Maryland	Memorial Student Union, ASU Tempe Campus - 2nd floor, Santa Cruz	61509 - Desorption Process Enhancement for Atmospheric Water Harvesting Using Ultrasound	Gokul Chandrasekaran, ASU
			61488 - Simulation and Prediction of Ferro-Nanofluid Thermal Performance Using CFD	Shahin Shafiee, Ruben Dario Anvene Nchama Prairie View A&M University
			61892 - Enhancing boiling heat transfer on an ultrafine nanofibrous coated superheated surface using ethanol/SWCNT Nanofluid	Ravi Pippal IIT Delhi
			61464 - Numerical Simulation of the Different Slope Effects of Conjugate Convective Heat Transfer in a Fully Insulated Enclosure with Thermal Conductivity Properties	Aidana Sabyrkulova Kazakh-British Technical University
			61475 - Numerical Analysis of Adsorption-Desorption Dynamics in a Compact Silica gel Based Atmospheric Water Harvesting System	Shaik Raheem IIT Kharagpur
5:00 PM - 6:30 PM	**SESSION 4D** **TS: Material Issues, Ceramics, Low Thermal Conductivity** **Moderator:** **Jae Hyun Kim,** NIST	Memorial Student Union, ASU Tempe Campus - 2nd floor, Pinal	61407 - Comparison of Second- and Fourth-Order Phase-Field Models for Thermomechanical Crack Propagation	Izaz Ali University of Ljubljana
			61520 - Effect of Vertical Stacking on In-Plane Thermal Conductivity in Stanene/hBN Heterostructures: A Molecular Dynamics Study	Titan Paul University of South Carolina Aiken
			61524 - Ultra-Low Thermal Conductivity PVDF-rGO Membranes for High Efficiency Thermal Desalination	Waqas Alam Purdue University
			61612 - Active Control of Kapitza Resistance at Solid-Liquid Interface via Electric Field-Induced Molecular Ordering	Titan Paul University of South Carolina Aiken

Time	Session	Room	Title	Presenter
5:00 PM - 6:30 PM	**SESSION 4E** **FD: Multiphase Flows-3** **Moderator:** **Kishan Bellur,** University of Cincinnati	Memorial Student Union, ASU Tempe Campus - 2nd floor, Yuma	61078 - Numerical Simulation of Single-Phase Flows in a Multi-Branch Minichannel Hot Spot Cooling System With Segmented Pin Fins	Murat Parlak ASELSAN INC.
			62928 - Modeling Multiscale Oscillations in Thin Liquid Films	Kishan Bellur, Ayaaz Yasin University of Cincinnati
			61849 - Numerical Simulation of Liquid-Gas Flow in The Slug Flow Pattern at Low Specific Mass Ratios	Rigoberto Morales NUEM - UTFPR
			61419 - Vertical Gas-Liquid Slug Flow: Experimental Analysis of Liquid Viscosity Effects (1-30 cP)	Rigoberto Morales NUEM - UTFPR
5:00 PM - 6:30 PM	**SESSION 4F** **FD: Aerodynamic Design and Analysis; Turbomachinery** **Moderator:** **Wayne S Strasser,** Liberty University	Memorial Student Union, ASU Tempe Campus - 2nd floor, Cochise	62060 - Aerodynamic Performance of Grid Fins as High Lift Devices	Luke Krick Liberty University
			62861 - Flow Characteristics of Supersonic Oscillating Jet Impinging on an Inclined Plate	Shabnam Mohammadshahi, Leigh Mayers New Mexico State University
			62892 - Effects of Surface Roughness on the Aerodynamic and Aeroacoustic Performance of Rotor Blades	June Kee Min, Seongho Park Pusan National University
			61243 - A Methodology for Modeling Centrifugal Pump Priming Performance	Nicholas Swaich Mainstream Engineering
			61438 - Introduction to a Dynamic Origami Inspired Annular Seal Design	Shubham Rath Virginia Tech
5:00 PM - 6:30 PM	**SESSION 4G** **ES: Thermal Management of Energy Systems-1** **Moderator:** **Mahyar Pourghasemi,** Western New England University	Memorial Student Union, ASU Tempe Campus - 2nd floor, La Paz	62817 - Extended-Range Measurements of Boiling Point Elevation and Transport Properties in Concentrated Seawater Brines	Laura Almara, Mohamed Abdelkareem Texas State University
			61335 - Isothermal compression in a liquid piston cylinder with dendritic PCM inserts	Meghana Athadkar Villanova University
			61422 - Battery Digital Twin Framework in Simulink for Voltage and Temperature Monitoring	Deepika Velumani IIT Roorkee
			61504 - Thermal Energy Systems Analysis of Physical Intelligence AI versus Human Workforce: A Lifecycle Energy Efficiency Assessment	Shyam Lunagariya ASU
			61516 - Enhancing Conductive-Gap Membrane Distillation (CGMD) Performance through Feed Channel Fins: Numerical Modeling and Parametric Study	Eiman Alkhadhir Purdue University
5:00 PM - 6:30 PM	**SESSION 4H** **ES: Energy Systems-2** **Moderator:** **Hashnayne Ahmed,** University of Florida	Memorial Student Union, ASU Tempe Campus - 2nd floor, Coconino	61345 - Structural stability assessment of SOFCs using current density, fuel utilization rate and temperature gradient	Byung Yeon Seo Kongju National University
			61468 - Elucidating the influence of flow maldistribution on the electrochemical performance of a fuel cell	Sreenivas Jayanti IIT Madras
			61499 - A Novel Micro-Scale LNG Plant: Design and Construction of a Small-Scale Natural Gas Liquefier	Eugenio José Cano Coscia Universidad Nacional de Itapúa
			61427 - Reciprocating Engine with Crank Phase Variation	Joseph VanderVeer ARL - Penn State University
			61940 - Design, Development and Tests of an Automated Setup for Experimental Research of Pressure-Retarded Osmosis Process	Fabian Dietrich Warsaw University of Technology
6:30 PM - 7:30 PM	**Career Panel**	Memorial Student Union, ASU Tempe Campus - 2nd floor, Arizona Ballroom	**Moderator: Bengisu Sisik,** George Washington University	Thomas Nevins Sandia National Laboratories Nicole R. Wesley Caterpillar Inc. Nesrin Ozalp Illinois State University Patrick Phelan ASU

Thursday — March 12, 2026

Time	Session	Room	Title	Presenter
8:00 AM - 10:00 AM	**Breakfast and coffee**			
8:00 AM - 8:15 AM	**Day 3 Announcements**	Memorial Student Union, ASU Tempe Campus - 2nd floor, Arizona Ballroom	Welcome and Opening - **Patrick Phelan,** ASU **Huseyin Bostanci**: Overview of Day 1, 2, and plan for Day 3, Conference Tools, Venue and Events Announcement	
8:15 AM - 9:15 AM	**Plenary Lecture 3**	Memorial Student Union, ASU Tempe Campus - 2nd floor, Arizona Ballroom	**The Carbon Crunch: Mapping the Demand for Decarbonization**	**Matt Kaloupek** Archer-Daniels-Midland Company **Moderator: Nesrin Ozalp** Illinois State University
9:15 AM - 9:30 AM	**Break**			
9:30 AM - 10:45 AM	**PANEL 3** **Moderator:** **Hamidreza Najafi** Florida Institute of Technology	Memorial Student Union, ASU Tempe Campus - 2nd floor, Arizona Ballroom	**Funding Opportunities for Advancements in Thermal and Fluid Engineering**	**Ronald D. Joslin** U.S. National Science Foundation **Fangyu Cao** U.S. National Science Foundation **Jin Wen** Pennsylvania State University
10:45 AM - 11:45 PM	**One to one meeting with Program Directors of Funding panel**	Memorial Student Union, ASU Tempe Campus - 2nd floor, Arizona Ballroom	**Ronald D. Joslin** **Fangyu Cao** **Jin Wen**	
10:45 AM - 11:00 AM	**Break**			
11:00 AM - 12:00 PM	**Lab Tour**	Depart Memorial Union	**ASU Campus Tour at 11:00 AM for 11:00 - 12:00 noon tour** (Limited to 15 participants) https://visit.asu.edu/	Sign-up at the registration desk
Technical Session 5				
Morning SESSIONS				
11:00 AM - 12:30 PM	**SESSION 5A** **ID: Fundamentals in Fluid Flow and Heat/Mass Transfer-2** **Moderator:** **Kishan Bellur,** University of Cincinnati	Memorial Student Union, ASU Tempe Campus - 2nd floor, Gila	61903 - RSM and ANN Analysis of Convective Heat Transfer in a Porous Medium under LTNE	Mohammad Mansur Rahman Sultan Qaboos University
			62930 - Stability and Contact Line Dynamics of Evaporating Thin Liquid Films	Kishan Bellur University of Cincinnati
			62935 - Choking in Supercritical Pipelines: Friction, Thermal, and Joule-Thomson Effects	Adam Arona The University of Akron
			62080 - Equations to Describe the Rapid Reversal of Earth's Magnetic Field	Sarah Russo Liberty University
			61993 - A Numerical Analysis for Emerging Vortices from Colloid Rollers	Cyrus Harris Liberty University
11:00 AM - 12:30 PM	**SESSION 5B** **ID: Fluid Flow and Heat Transfer in Industrial and Commercial Processes** **Moderator:** **Robert Paul Kacinski,** Liberty University	Memorial Student Union, ASU Tempe Campus - 2nd floor, Graham	61379 - Three-dimensional Transient Simulation of Multi-reaction Processes in a Cement Kiln Using Computational Fluid Dynamics and Discrete Phase Model	Rongze Hu Purdue University
			62175 - Investigating the Thermal Runaway Potential of Hot Spots in Polymerization Reactors	Elijah Yoder Liberty University
			62262 - Developing a Polymerization Reactor Punctuated Equilibrium Model	Ryan Learn Liberty University
			62865 - Bayesian Inference-based Inverse Method for the Estimation of Heat Transfer Coefficients	Aminul Khan Northern Arizona University
			62109 - A Systematic Study on Influence of EGR on Performance and Emissions of a CI Engine Fueled with Diesel and Blends of Jatropha Oil Biodiesel	Zachary Dickinson Liberty University
11:00 AM - 12:30 PM	**SESSION 5C** **TS: Radiation Heat Transfer** **Moderator:** **Konrad Rykaczewski,** Arizona State University	Memorial Student Union, ASU Tempe Campus - 2nd floor, Santa Cruz	61932 - Study of the Impact of a Moving Air Gap on the Heat Transfer in Protective Clothing Exposed to Low-Level Thermal Radiation	Mateusz Wendołowicz Warsaw University of Technology
			62874 - ANDI DeVil: Two-Color Outdoor Manikin for Quantifying Complex Shortwave and Longwave Irradiation Across the Body and Apparel Radiation Attenuation Performance	Konrad Rykaczewski ASU
			62923 - Self-adaptive Fabry-Perot emitters for dynamic thermal management	Vishwa Krishna Rajan ASU
			61036 - Thermal Design of a Military Electronic Chassis Using Hybrid Cooling Techniques	Murat Parlak ASELSAN INC.

Time	Session	Room	Title	Presenter
11:00 AM - 12:30 PM	**SESSION 5D** **FD: Measurement and Modeling of Environmental Flows-2** **Moderator:** **Udit Sharma,** Tennessee Technological University	Memorial Student Union, ASU Tempe Campus - 2nd floor, Pinal	61465 - A Numerical Simulation of the Hydrothermal Pollution Zones Formation in a Flowing Water Environment from the Coastal Power Plant	Alibek Issakhov Kazakh-British Technical University
			61435 - Ocean Response to Offshore Wind Farms in Tropical Waters	José Luis Amell Hernández University of Puerto Rico at Mayagüez
			61334 - Analysis of URANS Turbulence Model Using a GPU Fully-Implicit Finite Volume Solver	Arthur Mendonca de Azevedo, Elisan Magalhaes Aeronautics Institute of Technology
			61769 - Modulation of Corrosion Resistance by Varying the Combination of Nanofluids with Additives (Surfactants)	Debjyoti Banerjee TAMU
11:00 AM - 12:30 PM	**SESSION 5E** **ES: Thermal Management of Energy Systems-2** **Moderator:** **Arash Shad,** University of Florida	Memorial Student Union, ASU Tempe Campus - 2nd floor, Cochise	63242 - Thermo-Mechanical Consequences of Elevated Fault Currents in Electrical Grid Optical Ground Wires (OPGWs)	Pranav Abhijit Kale ASU
			61179 - Thermal Spike Mitigation: Thermoelectric Management of Primary Cooling Overload	Kayley Westerfield Penn State ARL
			61484 - Toward Sustainable Digital Infrastructure: Thermal and Economic Potential of Data Center Heat Reuse	Muhammad Mubashar Ashraf Virginia Tech
			61587 - Physics-Guided Grey-Box Modeling for Building Thermal Performance-Integrating RC Networks with Data-Driven Optimization	Tarun Vasudevan ASU
			61469 - A Computational Fluid Dynamics Approach for Understanding Particle Flow and Behavior in High-Ash Coal Gasification Using a Cyclone Gasifier	Sreenivas Jayanti IIT Madras
11:00 AM - 12:30 PM	**SESSION 5F** **ES: Solar Energy Equipment and Processes** **Moderator:** **Like Li,** University of Central Florida	Memorial Student Union, ASU Tempe Campus - 2nd floor, La Paz	61498 - Multi-Criteria Techno-Economic Analysis of Solar Thermal Technologies for Industrial Process Heat Applications in Phoenix, Arizona	Shyam Lunagariya ASU
			61763 - Thermomechanical Evaluation of a Particle-Based Solar Receiver Prototype during On-sun Conditions	Like Li University of Central Florida
			62123 - A Correlation for the Performance Enhancement Coefficient of Solar Air Heaters with Rotated Turbulators	Badr Albeshri University of Florida
			62624 - Thermo-Hydraulic Performance of a Solar Air Heater Equipped with Rotatable Turbulators: Numerical Analysis of Six Geometric Configurations	S.A. Sherif University of Florida
			62749 - Performance Analysis of Phase Change Material Selection for Thermal Management of Photovoltaic Modules under Different Regions and Seasons	Yu-Bin Chen National Tsing Hua University
11:00 AM - 12:30 PM	**SESSION 5G** **ES: Energy-Water-Food Nexus** **Moderator:** **Mahsa Farzaneh,** University of Florida	Memorial Student Union, ASU Tempe Campus - 2nd floor, Coconino	61850 - Thermal Analysis of Solar Energy-Driven Membrane Distillation System	Himanshu Tyagi IIT Ropar
			62373 - Desalination through air humidification by solar-heated evaporation of brackish water and moisture condensing in a chimney cooled by supplied cold brackish water	Bethany Radtke University of Arizona
			61766 - Desalination of Extremely High Salinity Brines using Novel Flash Evaporation and Swirl Flow Separation	Debjyoti Banerjee TAMU
			61441 - Soil Texture Effects on Evaporation Dynamics and Temperature Gradients in Sandy Loam and Silty Loam Soils	Shahnawaz Alam Dip Kansas State University
			62819 - Development of a Sustainable Automated Frost Prevention System	Sarah Biss The College of New Jersey
12:30 PM - 12:45 PM	**Break**			

12:45 PM - 1:45 PM	**Lunch and Rountable Discussions** **Moderator:** **Patrick Phelan,** ASU	Memorial Student Union, ASU Tempe Campus - 2nd floor, Arizona Ballroom	**Fluid Mechanics Aspects of Flow Batteries**	**Sreenivas Jayanti** IIT Madras
			Challenges in Numerical Modeling of Heat and Mass Transfer in Frost and Ice	**Arash Shad (ice)** **Mahsa Farzaneh (frost)** University of Florida
			High-Temperature Heat Pumps	**Mina Mikhaeel** ORNL
			Writing Your First Proposal and How to Secure Funding	**Bengisu Sisik** George Washington University **Murat Barışık** University of Tennessee
			Membrane Water Vapor Separations in HVAC and Industrial Applications	**Andrew Fix** University of Texas at Austin
			Flow & Thermal Management in Data Centers	**Bachir El Fil** Georgia Tech
			Thermal Sensing and Control for Energy-Efficient Buildings	**Fatih Evren** Pacific Northwest National Laboratory
			Finding Your First Tenure-Track Faculty Position	**Tianyu Yang** Arizona State University
			Thermal Energy Storage Systems	**Saeed Tiari** Widener University
			Heat Exchangers	**Kashif Nawaz** ORNL
			Challenges and Opportunities in Two Phase Flow Heat Transfer	**Hafiz Muhammad Ali,** KFUPM
			Applications & Challenges of Supercritical Fluids	**Jinglei Wang** Zhejiang University
			Ethical Integration of AI into Research and Classroom Settings	**Shyam Lunagariya** ASU
1:45 PM - 2:00 PM	**Break**			
2:00 PM - 3:00 PM	**Closing ceremony**	Memorial Student Union, ASU Tempe Campus - 2nd floor, Arizona Ballroom	**Patrick Phelan**: Overview and closure; **Lorenzo Cremaschi**, ASTFE President: Closure and Draw Prize Raffle; **Nesrin Ozalp**: Closure; **Hamidreza Najafi**: Closure.	

THANKS TO OUR EXHIBITORS AND SPONSORS

Friday — March 13, 2026

Time	Session	Title	Presenter
10:00 AM - 10:15 AM	**Opening Remarks**	Welcome and Opening - **Hamidreza Najafi,** Florida Institute of Technology; **Huseyin Bostanci,** University of North Texas	
10:15 AM - 10:45 AM	**Keynote Lecture**	**Advancing Thermal Processes for Sustainable Cooling and Dehumidification**	**Ernest Chua Kian Jon** National University of Singapore **Moderator: Patrick Phelan,** ASU
		Virtual Session 1	
		Morning SESSIONS	
11:00 AM - 1:00 PM	**SESSION V-1A** **ID: Computational Methods/Tools in Thermal-Fluid Systems** **Moderator:** **Laurie Florio,** US Army DEVCOM	61041 - Alternative technique for combined thermal and mechanical contact in CFD model with moving components	Laurie Florio US ARMY DEVCOM AC
		61042 - Comprehensive phase change modeling with agglomerates	Laurie Florio US Army DEVCOM
		62233 - Experimental and Computational Investigations of Injection Jet Shunt Assisted Fenestrated Fontan Circulation	Alain Kassab University of Central Florida
		61425 - A Uniform Paradigm for Multi-Objective Optimization of Heat Exchangers	Parimah Kazemi Heat Transfer Research, Inc.
		61796 - Effect of Internal Heat Generation and Magnetic Field on Natural Convection Heat Transfer in a Grooved Rectangular Cavity Heated Below	Emel Selamet OSU
		61507 - Computational Modeling and Experimental Validation for Efficient Energy Recovery in Thermal Treatment of Produced Water	Mahyar Abedi Oregon State University
11:00 AM - 1:00 PM	**SESSION V-1B** **ID: Fundamentals and Applications in Fluid Flow and Heat/Mass Transfer-1** **Moderator:** **Baris Burak Kanbur,** University of Southern Denmark	61375 - Drying Hygroscopic Porous Media that Exhibit Type I Sorption Isotherms	Graham Thorpe Victoria University
		61305 - Experimental and Computational Analysis of a Multiphase Flow-Driven Fluidic Oscillator	Baris Burak Kanbur University of Southern Denmark
		61364 - Numerical Investigation of Pulsed Supersonic Jet in Subsonic Crossflow	Abinayaa Dhanagopal University of Texas San Antonio
		61452 - Radiation and Heat Transfer Modelling in Free-Falling Particle Curtain with Particle Size Distribution	Navishka Abhishek Patabendhi Arachchige Federation University Australia
		61655 - Numerical Study of the Ambient Wind Influence on Performance of a Specific Upright Air-Cooler	Gerald (Gerry) Schneider University of Waterloo
		61496 - Numerical Study of Electric Field Effects on Boiling Heat Transfer and Liquid-Vapor Interface	Prathamesh Shridattaprasad Deshpande North Carolina State University
11:00 AM - 1:00 PM	**SESSION V-1C** **TS: Combustion, Fire and Fuels; Material Issues** **Moderator:** **Floriana Stoian,** The Polytechnic University of Timisoara	61522 - Zero-CO residential natural gas furnace	Zhiming Gao Oak Ridge National Laboratory
		61646 - Advanced Micro Combined Heat and Power Device	Zhiming Gao Oak Ridge National Laboratory
		61648 - Numerical Investigation of Diesel–Microalgae–Renewable Diesel Blends: Combustion, Emissions, and Performance in a CI Engine	Shanzidul Ahmed Lamar University
		61295 - Influence of Joining Techniques on the Thermal performance of Metal Foam Heat Exchangers	Abdul Qadeer Khoso Università degli Studi della Campania Luigi Vanvitelli
		61514 - An experimental study of the specific heat capacity of water based Fe3O4 nanofluids	Floriana Stoian Politehnica University Timisoara
		62878 - Experimental and Numerical Evaluation of Melt-Pool Behavior in Single-Layer PLA Extrusion	Nicholas Hernandez Florida International University
11:00 AM - 1:00 PM	**SESSION V-1D** **FD: Turbulent Flows** **Moderator:** **Tianyu Yang,** Arizona State University	61381 - Enhancing RANS Modeling For Mixed Convection via Incorporation of Buoyancy Production Term in Nek5000	Gleb Sazonov Oregon State University
		61382 - Modal Analysis of a Supersonic Jet in Subsonic Crossflow Using POD and SPOD at Low Reynolds Number	Subhajit Roy UT San Antonio
		61386 - Study of EOC Optimazation Method for Ejector Mixing Chamber Efficiency and Area Expansion Coefficient	Peishi Han Dalian University of Technology
		61388 - Investigation of Two-Dimensional Momentum Exchange Characteristics in Different Regulation Modes for Stationary and Adjustable Ejector	Yong Yang Dalian University of Technology
		61512 - Compressibility Effects Over a Supersonic Bump	Kevin Mathew Maran UTSA
		61478 - Pressure Signatures of Spinning Cricket Balls	Siddharth Sudhakaran Amity University Dubai
11:00 AM - 1:00 PM	**SESSION V-1E** **ES: Heat Pumps and Innovative Cooling and Heating Systems** **Moderator:** **Tamer Calisir,** Gazi University	61439 - Climate-sensitive sizing of PV-retrofitted heat-pump systems with latent thermal storage: A three-region study for Italy	Liying Zhao University of Padova, Dept. ICEA
		61719 - Design and Performance Evaluation of a Wearable Cooling Device Utilizing Peltier Technology and Water-Cooling Mechanism	Mehede Hasan BUET
		61914 - Indirect Direct Evaporative Cooling and Water Atomization	Abdelrahman Bassiouny Alexandria University
		62348 - Thermal Management for Li Batteries at Freezing at Extreme Temperatures Using Passive Cooling Techniques	Ayati Vyas UCSB
		63051 - Field Demonstration of a Thermal Energy Storage-Heat Pump for Building Space-Heating Load Shifting	Yiyuan Qiao Oak Ridge National Laboratory
		61780 - School Energy Resilience: A Simulation-Based Case Study in a Hot-Humid Climate	Muhammed Salih Florida Institute of Technology

Time	Session	Title	Presenter
1:00 PM - 1:30 PM	Break		
	Virtual Session 2		
	Afternoon SESSIONS		
1:30 PM - 3:30 PM	**SESSION V-2A** **ID: ML and AI in Thermo-Fluid Engineering** **Moderator:** **Elijah Paul Yoder,** Liberty University	61666 - Advancing Wake Structure Classification behind Oscillating Airfoils by Mitigating Class Imbalance with a Novel Data-Driven Machine Learning Framework	Rajashekar Mogiligidda Texas A&M University-Kingsville
		62760 - Experimental Investigation of CuO/H_2O–LiBr Nanofluid Viscosity and Prediction Through Artificial Intelligence	Elizabeth Yera Universidad Carlos III de Madrid
		63376 - Quantifying Nanoparticle Uncertainty: A Stochastic Fuzzy-ANN Approach to Reliable Thermal Processing in Hybrid Nanofluids	Shoaib Ali KFUPM
		61223 - Effective Learning Strategies in STEM: AI+Teaching	Muzammil Arshad University of Washington
		61637 - Nanofluid Enhancement of Gravity-Assisted Copper Heat Pipes: A Systematic Investigation of Working Fluid Optimization	Timothy Junior Amevor New Mexico Tech
		61639 - Numerical Study of a PV/T Panel Enhanced with Nanoparticles: Comparative Analysis Performance Using Nanofluid as Heat Transfer Fluid vs. NanoPCM Layer	Oronzio Manca Università degli Studi della Campania "Luigi Vanvitelli"
1:30 PM - 3:30 PM	**SESSION V-2B** **ID: Fundamentals and Applications in Fluid Flow and Heat/Mass Transfer-2** **Moderator:** **Nima Nadim,** Curtin University	61336 - Thermal Spreading Resistance From An Annular Rings in a Square Flux Channels	Lisa Lam Wingate Thermal Energy
		61387 - Enhancing the Uniformity of Flow in Electrostatic Precipitators Via Suitable Perforated Plate Insertion	Gerald (Gerry) Schneider University of Waterloo
		61681 - Integrated Drying-Grinding System for High-Efficiency Production of Pulverized Sewage Sludge	Natalie Germann University of Stuttgart
		61372 - Investigation of hexagonal Boron Nitride based nanofluids with varying particle sizes	Yousef Alweqayyan Kuwait University
		61757 - The Effect of Off-Design Conditions on Inlet Buzz	Nicholas DiZinno New York University
		61350 - An Equivalent Fin Model for Experimental Study on Local Convective Heat Transfer Coefficients in a One-Sided Heated Rectangular Channel	Lulu Li USTC
1:30 PM - 3:30 PM	**SESSION V-2C** **ID: Fundamentals and Applications in Fluid Flow and Heat/Mass Transfer-3** **Moderator:** **Mike Pauken,** NASA JPL	61631 - Thermal Modelling of Aircraft Electric Motors for Design Optimization in All-Electric Transport	Hayder Yousif Ahmad ATEC (A-tec London ltd)
		62707 - Experimental and data-driven thermal characterization of a domestic gas oven with natural gas-hydrogen blends	Ana Delgado University of Aveiro
		62693 - Performance Analysis and Optimization of a Parabolic Solar Dish-Powered Dual-Stage Multigeneration System with Thermal Energy Storage	Michael Pauken Jet Propulsion Laboratory
		61234 - Performance Analysis and Optimization of a Parabolic Solar Dish-Powered Dual-Stage Multigeneration System with Thermal Energy Storage	Malik Muhammad Nauman Universiti Brunei Darussalam
		61250 - Transient Electro–Thermal Analysis of Beam-Splitter PV Systems with LCR Determination	Abdelrahman Kandil KFUPM
		61405 - Nozzle effects on a supercritical carbon dioxide pneumatic launch system: a theoretical study	Siming Wang USTC
1:30 PM - 3:30 PM	**SESSION V-2D** **ID: Fundamentals and Applications in Fluid Flow and Heat/Mass Transfer-4** **Moderator:** **Khalil Khanafer,** University of Michigan-Flint	61647 - Direct simulation of supersonic boundary layer transition	Subhajit Roy UT San Antonio
		60873 - Mixed Convection and Heat Transfer in a Lid-Driven Porous Cavity: Influence of Obstacle Geometry and Flow Parameters	Jeremy Sarpong University of Michigan–Flint
		61393 - Dynamically Tunable Infrared Emissivity via Reconfigurable Materials	Zhaoran Li USTC
		61430 - Comparative Analysis of Airside Thermal-Hydraulic Performance of Fins in Flat Tube Heat Exchangers under Humid Conditions	Faheem Ejaz KFUPM
		61527 - Integrated Experimental Characterization of Fluid-Filled Cellular Composite Cores: Linking Microstructure, Mechanics, and Transport Properties	Nicholas Hutt New Mexico Tech Alumni
		61614 - Experimental Determination of Flexural Constitutive Relations for Fluid-Filled Sandwich Core Composites	Gabriel Maestas New Mexico Tech
1:30 PM - 3:30 PM	**SESSION V-2E** **ES: Thermal management of Energy Systems; Energy-Water-Food Nexus** **Moderator:** **Yiyuan Qiao,** Oak Ridge National Lab	60690 - Comparative Analysis of Spray Cooling Fluids for Photovoltaic Panel Efficiency	Roy Issa West Texas A&M University
		63052 - Grid-Interactive TES Heat Pump Systems through Model Predictive Control with Integrated Distributed Energy	Yiyuan Qiao Oak Ridge National Laboratory
		61574 - Advances in Steam Generation Efficiency: A Review for Sustainable Power Production	Joshua Mendez Texas A&M University
		61093 - Experimental Investigation of a Multistage Bubble-Column Humidification—Dehumidification Desalination System	Liban Jimale KFUPM
		61333 - Integrated Thermoelectric-Multi-Stage Flash distillation	Dia' Afaneh KFUPM
		62922 - On The Need For A Novel Theoretical-Experimental Approach for Quantifying Water Transport Drivers in Proton Exchange Membranes	Nicholas Ingarra Oakland University
3:30 PM - 4:00 PM	**Closing**	**Hamidreza Najafi,** Florida Institute of Technology; **Huseyin Bostanci,** University of North Texas	

ASTFE

American Society of Thermal and Fluids Engineers

12TH THERMAL AND FLUIDS ENGINEERING CONFERENCE (Hybrid)

In person at Southern Methodist University, Dallas, TX, USA
And partially online virtual via Zoom and Whova

MARCH - APRIL* 2027

*Tentative dates: March 14-17, 2027

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The American Society of Thermal and Fluids Engineers (ASTFE), TFEC2027 Conference (Hybrid) will be held March - April*, 2027 in person at Southern Methodist University, Dallas, TX, USA and partially online virtual. ASTFE is the premier international society by and for professionals within the thermal and fluids science and engineering community. The 12th ASTFE conference, TFEC2027 provides an international forum for the dissemination of the latest research and knowledge in the thermal and fluid sciences. Authors are invited to submit abstracts covering, but not limited to, the following areas:

Track 1: Thermal Science

- TS: Aerospace Applications
- TS: Heat Pipes
- TS: Innovations in Heat Exchangers
- TS: Combustion, Fire and Fuels
- TS: Electronics Cooling
- TS: Heat Transfer in Multiphase Flows
- TS: Flow and Heat Transfer in Materials Processing Science and Manufacturing
- TS: Heat/Mass Transfer Enhancement Techniques
- TS: Material Issues, Ceramics, Low Thermal Conductivity
- TS: Radiation Heat Transfer
- TS: Inverse Problems and Parameter Estimation in Heat Transfer

Track 2: Fluid Dynamics

- FD: Atomization
- FD: Flow Instability
- FD: Rheology of Nonlinear Materials and Complex Fluids
- FD: Measurement and Modeling of Environmental Flows
- FD: Multiphase Flows
- FD: Nano and Micro Fluids Applications
- FD: Turbulent Flows
- FD: Aerodynamic Design and Analysis
- FD: Turbomachinery
- FD: Thin Film Fluid Phenomena

Track 3: Interdisiplinary Studies

- ID: Experimental Methods/Tools in Fluid Mechanics and Heat/Mass Transfer
- ID: Computational Methods/Tools in Thermal-Fluid Systems
- ID: Machine Learning and Artificial Intelligence in Thermo-Fluid Engineering
- ID: Fundamentals in Fluid Flow and Heat/Mass Transfer
- ID: Flow and Heat Transfer in Biological Systems
- ID: Fluid Flow and Heat Transfer in Industrial and Commercial Processes
- ID: Electric, Magnetic, Flow and Thermal Phenomena in Micro and Nano-Scale Systems

Track 4: Energy and Sustainability

- ES: Carbon Capture and Sequestrations
- ES: Heat Pumps and Innovative Cooling and Heating Systems
- ES: Sustainable Buildings and Cities
- ES: Alternative Energy Conversion Systems (Wind, Biomass, etc.)
- ES: Energy Storage Systems
- ES: Hydrogen Energy Systems
- ES: Solar Energy Equipment and Processes
- ES: Innovative Refrigeration Systems
- ES: Nuclear Energy Systems
- ES: Energy-Water-Food Nexus
- ES: Novel Thermodynamic Cycles
- ES: Thermal management of Energy Systems

Track 5: Educations and Ethics

- EE: Advanements in Thermo-Fluids Education
- EE: Ethics in Thermo-Fluid Engineering
- EE: Innovations in Capstone Projects

Track 6: Competitions and Special Conference Program Elements

- Nuclear Thermal Hydraulic CFD Competition
- Students Poster Session
- Students Projects: IRES

Authors will have options to present their research work as presentation only, extended abstract (maximum of 4 pages), or full-length paper (5-10 pages). The conference proceedings will contain both peer-reviewed extended abstracts and papers, and will be distributed in a digital form, the ASTFE Digital Library. Authors will also have the option to submit their full conference papers to a technical journal of their choice after the conference. The full conference papers should have significant changes made before submitting to any journals. The same full conference papers cannot be submitted to any journal publications. Authors may share their original manuscripts with the public but must include a citation and a link to the published paper (conference paper or journal paper).

SUBMIT YOUR PAPER ABSTRACT BY SEPTEMBER 6TH, 2026 TO: http://submission.astfe.org

Please check http://astfe.org/tfec2027/ regularly for conference updates or contact any member of the organizing committee for further inquiries.

DEADLINES

September 6, 2026
Abstract Due

September 13, 2026
Notification of Abstract Accept / Decline

October 11, 2026
Draft Paper / Extended Abstract Due

November 8, 2026
Draft Paper / Extended Abstract Reviews Completed

November 15, 2026
Authors Notified of Paper / Abstract Status

November 22, 2026
Revised Manuscript Due

December 6, 2026
Presentations Only Abstracts Deadline / Final Paper / Extended Abstract Due

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Conference Program

11TH THERMAL AND FLUIDS ENGINEERING CONFERENCE (HYBRID)

March 9-12, 2026

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UPCOMING CONFERENCES

17th International Conference on Thermal Engineering Theory and Applications

Valletta, Malta
June 22-24, 2026

18th International Heat Transfer Conference

Rio de Janeiro, Brazil
August 2-7, 2026

The Second International Conference on Heat and Mass Transfer in Porous Media: Fundamentals and Applications (HMT-PM 2026)

Prague, Czech Republic
October 19-23, 2026

8th Micro/Nanoscale Heat & Mass Transfer International Conference (MNHMT2027)

Napoli, Italy
January 9-11, 2027

12th Thermal and Fluids Engineering Conference (Hybrid)

Southern Methodist University, Dallas, TX, USA
March - April, 2027

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