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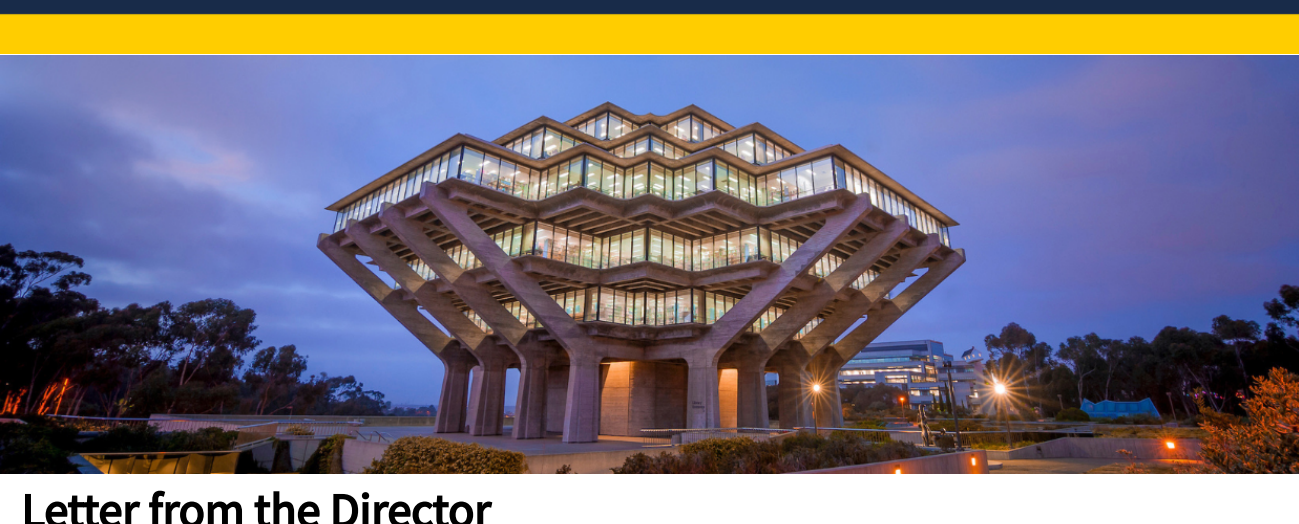
MATERIALS SCIENCE AND ENGINEERING

FALL 2023 NEWSLETTER



Letter from the Director

Dear Colleagues, Students, and Friends:

Advanced materials are shaping our modern world in many visible and invisible ways, revolutionizing the ways in which we communicate, calculate, travel, and diagnose and treat diseases, among many others. At UC San Diego, materials science and engineering is a story of growth and innovation. With more than 100 dedicated faculty members, we prioritize the support, success, and mentorship of our students, and provide them with access to state-of-the-art facilities.

We strive to give our students the opportunity to become trailblazers, students that will define not just the 21st century, but become the foundational scientists and engineers for the technologies that will lead us into the 22nd century. This comes at a time of worldwide transition from a linear, performance-oriented materials paradigm to a circular and sustainable economy that is based on information. With this, we are uniquely embracing innovative topics such as data-driven and sustainable materials design as part of our curriculum.

Our goals and values are defined by:

Excellence: Our distinctive campus-wide program connects teaching and research to stimulate exceptional academic scholarship, intellectual curiosity, entrepreneurial spirit, and personal growth at all levels of graduate education.
Professionalism: Our award-winning faculty promote cross-fertilization between theoretical and practical inquiries, encourage bold research with state-of-the-art facilities, and pursue opportunities for professional engagement.
Shared values: We serve in a climate of integrity, respect, and inclusiveness, while embracing independent thinking, excellent scientific practice, accountable leadership, and social responsibility.
Global responsibility: We foster interdisciplinary approaches, international collaboration, and a commitment to global sustainability in all steps of the innovation process.

Our hope and aspirations are that our research, teaching, and mentorship will propel the scientific revolution for the betterment of society, with compassion, kindness, integrity, and justice. We invite you to explore our website and visit us! You are welcome at our beautiful UC San Diego campus.

Sincerely,

Olivia A. Graeve, Ph.D.
Professor and Director
Program in Materials Science and Engineering
University of California San Diego

FACULTY NEWS

Engineers at UC San Diego Unveil Ultrasound Wearable for On-the-Go Heart Health Monitoring

Materials Science and Engineering alumnus Hongjie Hu, who was mentored by Associate Professor Sheng Xu, has achieved the position of lead author in a groundbreaking article featured in *Nature*. The study, which was featured in UC San Diego Today, explores an advanced wearable device for continuous heart monitoring, marking a significant stride in healthcare innovation. While prior tools aimed at similar functions were hindered by size, wearability, or precision issues, this mechanism tackles these concerns head-on.

This novel wearable apparatus harnesses the power of ultrasound—an imaging technique that utilizes sound waves to visualize internal bodily processes—and provides a continuous, real-time glimpse into the intricacies of cardiac function. Its ingenious design ensures both secure attachment to the skin (for up to 24 hours) and optimal comfort, even during active movement. One of its standout features lies in its ability to capture multidimensional views of the four primary chambers of the heart, presenting a holistic understanding of its dynamics. The integration of artificial intelligence allows it to accurately measure blood volume in the left ventricle—an essential gauge of pumping efficiency. Harnessing this data, the device provides detailed insights into cardiac performance, including stroke volume (the blood ejected per heartbeat), cardiac output (the total blood pumped per minute), and ejection fraction (the proportion of blood expelled from the left ventricle with each contraction).

In contrast to existing methods that offer limited insights, require specialized operators, or incur high costs, this cutting-edge device overcomes these challenges. Its continuous, non-invasive monitoring capabilities could revolutionize cardiovascular diagnosis and heart health management, merging technology and medical science seamlessly for a transformative impact. The study includes multiple UC San Diego Materials Science and Engineering students and alumni, including Xiangjun Chen, Keren Shi, Sai Zhou, Yue Gu, Xinyu Wang, Xinyi Yang, and Jing Mu.

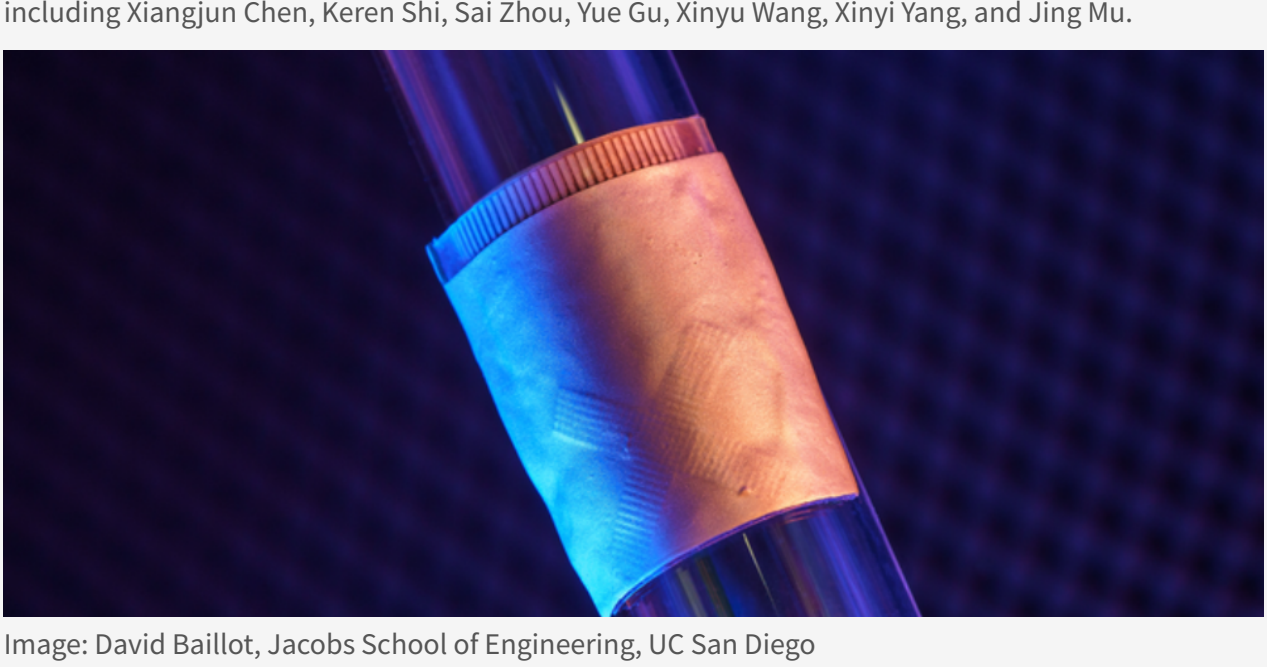


Image: David Baillot, Jacobs School of Engineering, UC San Diego

Multiscale Multiphysics Design Optimization (M2DO)

The Multiscale Multiphysics Design Optimization (M2DO) laboratory, led by Professor Hyunsun Alicia Kim, develops AI-based computational design methods based on topology optimization to investigate and discover new material systems and tailor to their purposed functionalities. The current research activities are focused particularly on coupled problems (i.e. multiphysics and/or multiscale) to design for multifunctionalities in mechanics, heat transfer, fluid flow, dynamics, and multiscale configurations crossing various scales. The research is multidisciplinary in nature, taking state-of-the art mathematical and computational approaches in material systems involving large-scale, nonlinearity and complexity.

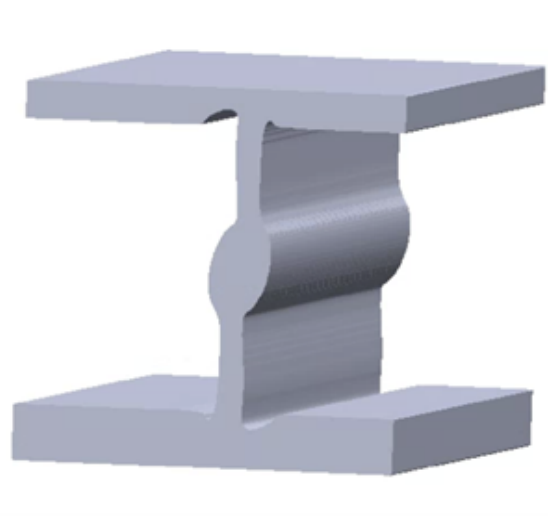


Figure 1. Shape-optimized for mechanical nonlinearity.

Professor Kim is leading the Center for DREAMS (Dynamically Responsive Emergent Architected Material Systems) with Associate Professor Nicholas Boechler in partnership with two other UC campuses (UC Irvine and UC Santa Barbara), Los Alamos National Laboratory, and Lawrence Livermore National Laboratory. The DREAMS team is investigating additively manufactured (AM) architected metal designed for specific nonlinear dynamics behavior under impact (Figure 1). They are developing a digital-twin of the multiscale material system for design and tailoring via optimization and AI methods, based on the integrated computational model of materials, manufacturing, and system functionality.

One of the key challenges with the AM materials is the thermomechanical behavior of the resulting materials and their properties. The M2DO has an extensive background in developing design optimization for thermomechanics under heat transfer and fluid physics. Figure 2 depicts a few examples, with (A) optimum 3D material for heat dissipation, and (B) optimum 3D fluid channel configuration for convective heat transfer.

With the optimized materials, such as those shown in Figure 2A, some of the complex design features can be at a small scale, which can be challenging to manufacture with consistent and predictable material properties, thereby failing to realize the optimum overall heat dissipating performance. This is a well-known challenge in AM materials where the material properties are more variable and their uncertainties arise from both the lower scale processing as well as the continuum scale geometrical features and tool paths. The team is developing a new AI algorithm that can propagate the uncertainties across scales and determine a robust design, i.e. optimized mean performance with the least sensitivity to the material property variables expected from the AM technique.

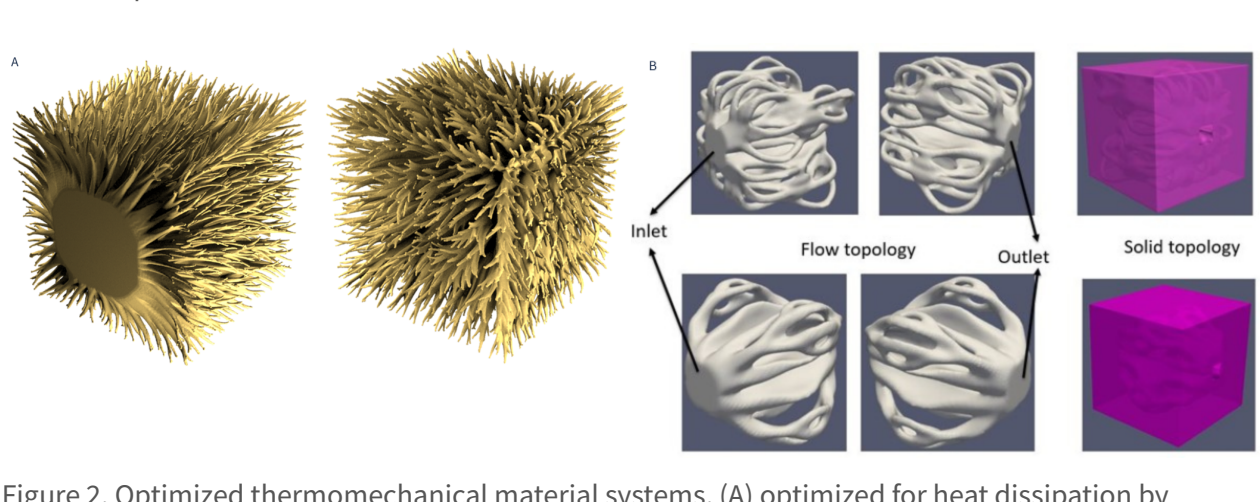


Figure 2. Optimized thermomechanical material systems, (A) optimized for heat dissipation by conduction; (B) optimized internal fluid channels for cooling.

Revolutionizing 3D Bioprinting for Tissue Engineering and Coral Reef Restoration

Professor Shaochen Chen's research focuses on biomaterials and 3D bioprinting for tissue engineering and regenerative medicine applications. His team explores new knowledge of cell-material interactions in the full range of physical dimensions (from nano- to micro- to meso-scale), time span (from femtoseconds to months), and biological dimensions (from molecular to cellular to tissue). The research group not only investigates fundamental scientific issues, such as cell interactions with micro and nano-environments, biomaterials, nanomaterials, and biomechanics, but also solves the technological and translational issues associated with tissue/organ repair and regeneration.

Professor Chen is a pioneer in light-based 3D printing and bioprinting techniques for biomaterials. His research group recently developed a high-throughput, direct in-well printing method for 3D micro-tissues in a standard multi-well plate (Figure 1). In this work, the team presented a digital light processing (DLP)-based, rapid continuous 3D-bioprinting platform capable of automated well plate printing, for high throughput *in situ* fabrication of 3D tissue constructs of up to 96 samples per batch. This is especially significant when creating 3D tissue scaffolds where many functionally-identical copies of a particular sample may be required, especially in high throughput screening (HTS) operations where repeatability is paramount. The team demonstrated direct in-well 3D bioprinting and culturing of biomimetic human hepatocellular carcinoma scaffolds, as well as an example of drug screening utility with a functional drug response validation test of a commonly-used chemotherapy drug. This work represents the first DLP-based 3D bioprinter for direct in-well printing with a printing speed that is 1,000 times faster than a traditional extrusion-based 3D printing process.

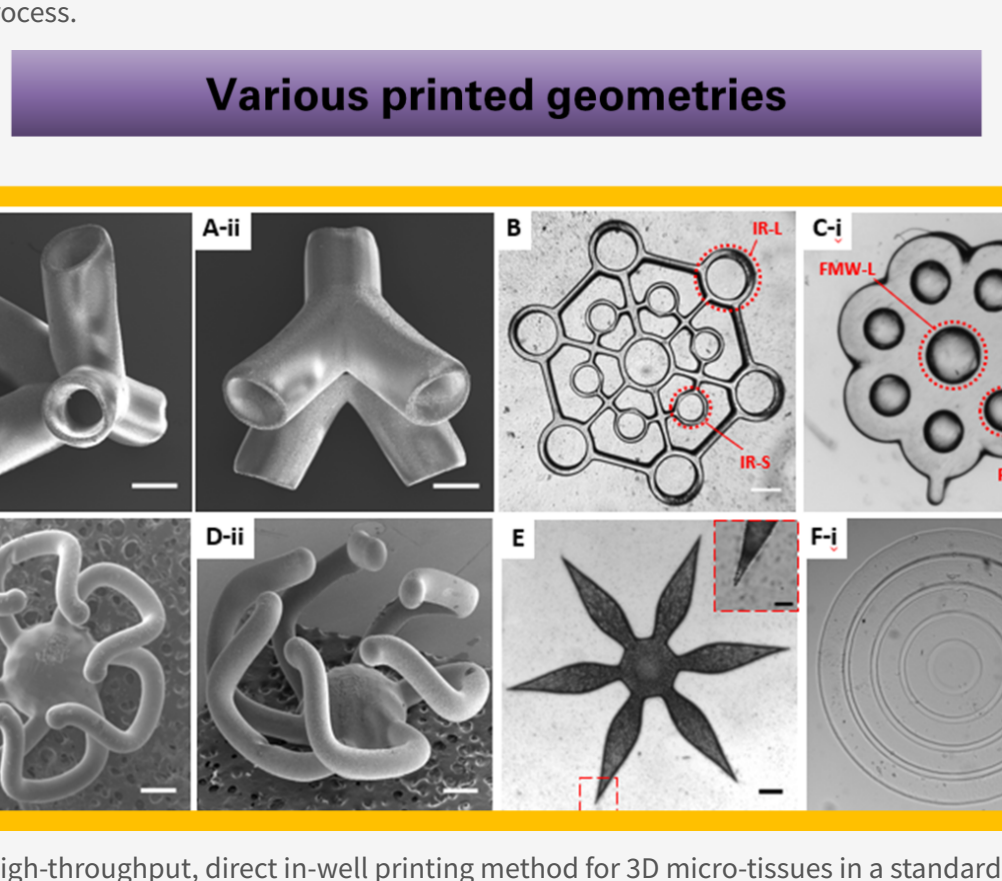


Figure 1. High-throughput, direct in-well printing method for 3D micro-tissues in a standard multi-well plate.

In another groundbreaking endeavor, Professor Chen's team expanded the horizons of their bioprinting technique by pioneering the creation of the first 3D bioprinted coral constructs that encapsulated photosymbionts (as illustrated in Figure 2). This development takes on significant importance in light of the alarming global decline of coral reefs, which have diminished by over 30% since the 1980s, with projections of a further 70%-90% decline in the coming decade. The restoration of coral reefs is not only vital for the preservation of ocean ecosystems but also serves as a natural defense against coastal erosion and storms. Professor Chen's group engineered 3D-printed corals capable of growing microalgae with extraordinarily high spatial cell densities. This pioneering work introduces a transformative approach to the repair and rejuvenation of coral reefs.

Figure 2. 3D bioprinted coral constructs that encapsulated photosymbionts.

Structural Supercapacitors for Enhanced Energy Capacity

Professor Tse Nga (Tina) Ng and her lab are producing structural supercapacitors that aim to expand the energy capacity of a system by integrating load-bearing and energy-storage functions in a multi-functional structure, resulting in weight savings and safety improvements. The work, which was recently published in *Science Advances*, develops strategies based on interfacial engineering to advance multi-functional efficiency. The structural electrodes were reinforced by coating carbon-fiber weaves with a uniquely stable conjugated redox polymer and reduced graphene oxide that raised pseudocapacitive capacitance and tensile strength. The solid polymer electrolyte was tuned to a gradient configuration, where it facilitated high ionic conductivity at the electrode-electrolyte interfaces and transitioned to a composition with high mechanical strength in the bulk for load support. The gradient design enabled the multilayer structural supercapacitors to reach state-of-the-art performance matching the level of mono-functional supercapacitors. The structural supercapacitor was made into the hull of a model boat to demonstrate its multifunctionality (Figure 1).

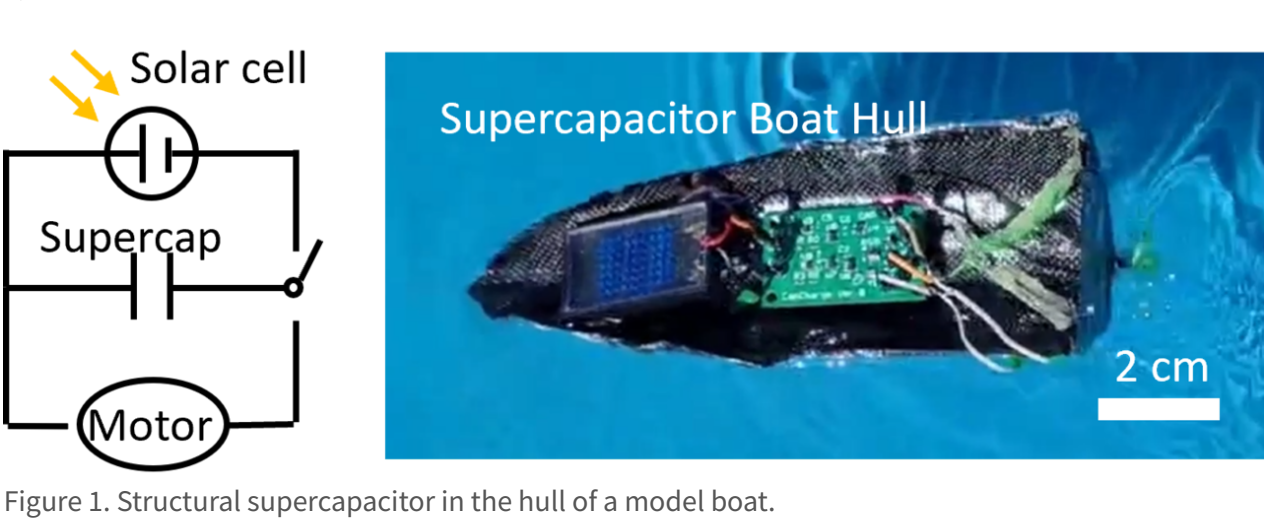


Figure 1. Structural supercapacitor in the hull of a model boat.

OUR HISTORY

Throughout its history, the Program in Materials Science and Engineering at UC San Diego has thrived on the extraordinary groundwork laid by a group of remarkable faculty members. Here, we highlight a few of those members, including Professor Siavouche "Sia" Nemat-Nasser†, Professor Jan Talbot, Professor Joanna McKittrick†, Professor Marc Meyers, Professor David Miller, and Professor Robert Asaro, who stand out among these luminaries, leaving an enduring imprint on the landscape of materials science. Their pioneering research, unwavering commitment to mentorship, and substantial contributions to academia have fortified the program's foundation and have also significantly impacted generations of students and researchers.

Professor Siavouche "Sia" Nemat-Nasser, an esteemed figure in engineering, had a distinguished career at UC San Diego's Jacobs School of Engineering before retiring in 2019. Despite his retirement, he remained active through the Center of Excellence for Advanced Materials (CEAM). Originally from Tehran, Iran, he earned his MS and Ph.D. degrees from UC Berkeley and had two distinct tenures at UC San Diego, with a stint at Northwestern University in between. Upon his return to UC San Diego, Nemat-Nasser played a pivotal role in founding and directing the Program in Materials Science and Engineering, gaining global recognition for this campus-wide graduate degree initiative. He also initiated a program focusing on material behavior, attracting researchers worldwide and securing National Science Foundation support for the Institute for Mechanics and Materials. His extensive research delved into material failure mechanisms, impacting various fields. He authored over 500 scientific articles, contributed to over 20 books, and received accolades like the Timoshenko Medal and the ASME Gold Medal. Elected as a member of the National Academy of Engineering in 2001, he was known for pioneering micromechanical modeling. He also served as the founding editor-in-chief of the journal *Mechanics of Materials* and contributed to Persian cultural exploration through the Roghieh Chehre-Azad Distinguished Professorship. Nemat-Nasser passed away on January 4, 2021, at the age of 84.

Professor Jan Talbot, a prominent figure in chemical engineering and materials science, made substantial contributions to UC San Diego's academic and research landscape. Joining the university in 1986 as one of its pioneering female faculty members, she overcame challenges to combine chemical engineering and materials science, leveraging UC San Diego's interdisciplinary culture to carve a unique academic path. Talbot played a pivotal role in establishing the graduate NanoEngineering program, offering chemical engineering students a diverse learning experience. Her research spanned multiple areas, including electrophoretic deposition of phosphors, chemical mechanical polishing, and thermochemical hydrogen production, with a focus on sustainable technologies like solid-state lighting. Beyond research, she held leadership positions, including Chair of the UC San Diego Academic Senate and President of the Electrochemical Society. Throughout her career, Professor Talbot emphasized mentorship and teaching, especially in nanomaterials, drawing inspiration from colleagues like Professor Joanna McKittrick and Professor Jeanne Ferrante, who influenced her commitment to supporting and mentoring women in academia. In retirement, she has pursued adventures such as international travel and competitive aqua-bike competitions, demonstrating her enduring passion for learning and exploration.

Professor Joanna McKittrick, a pioneering engineering faculty member at UC San Diego, is celebrated for her significant contributions to materials science and her dedication to mentoring. In 1988, McKittrick became one of the first women to join the engineering faculty at UC San Diego, a department that has evolved from Applied Mechanics and Engineering Sciences (AMES) to its current form as the Department of Mechanical and Aerospace Engineering (MAE). McKittrick played a crucial role in advancing luminescent materials for various applications including medical, automotive, aviation, and solid-state lighting, while her collaborative efforts with fellow professor Jan Talbot resulted in groundbreaking work in luminescent materials for displays and drug delivery systems. Her research extended to biomaterials, gaining recognition in mainstream media such as *Popular Science*, *Smithsonian Magazine*, and ABC News. Throughout her 31-year career, McKittrick was a passionate advocate for underrepresented students in science and engineering, actively mentoring diverse students and supporting organizations like the National Society of Black Engineers and the ENLACE program. Her legacy encompasses groundbreaking research, mentorship, and unwavering support for student success, making her a beloved figure in the engineering and science community. McKittrick passed away on November 15, 2019, at the age of 65.

Professor Marc Meyers, a distinguished researcher in materials science, has significantly advanced the field with a focus on mechanical behavior and the dynamic behavior of materials, including dynamic synthesis and processing, deformation of nanocrystalline materials, and biological materials. His influential books, "Dynamic Behavior of Materials" and "Mechanical Behavior of Materials," are widely recognized. Following the completion of his doctorate, he became an Associate Professor and Researcher at the Military Institute of Engineering in Brazil, where he pioneered the establishment of Latin America's first shock wave laboratory. His collaboration with New Mexico Tech resulted in the founding of the EXPLOMET conference series in 1980 and the Center for Explosives Technology Research, where he served as the Associate Director. He also served as an Advisor to the Director in the Materials Science Division at the U.S. Army Research Office. In 2017, he received the prestigious Duvall Award from APS for his fundamental contributions to shock compression science, with his work also gaining recognition in media outlets such as *National Geographic* and the Discovery Channel. Beyond his research, Meyers has played a vital role in professional societies, chairing committees, organizing symposia, and co-founding events like the Pan American Materials Conferences. During his tenure at UC San Diego, he served as Associate Director and Director of the Institute for Mechanics and Materials, actively contributing to symposium coordination and academic mentorship, showcasing his dedication to advancing materials science and education.

Professor David R. Miller, an esteemed faculty member of UC San Diego, holds a BS in Chemical Engineering from UC Berkeley and a Ph.D. in Chemical Engineering from Princeton University. In 1966, he commenced his academic journey at UC San Diego as an Assistant Professor in AMES, which is now MAE. His research primarily centers around experimental engineering physics, surface physics, gas dynamics, and molecular beams. Throughout his illustrious career, he has assumed various leadership roles, including Chairman of MAE, Acting Dean of Engineering, and Associate Dean of Engineering. In 1997, he was appointed as Associate Vice Chancellor for Academic Planning and Resources and he served for two years as the Acting Senior Vice-Chancellor of Academic Affairs. Professor Miller has garnered numerous accolades, including the Academic Senate Distinguished Teaching Award, the Alumni Association Distinguished Teacher of the Year Award, the Outstanding Teacher and Service Award from Revelle College, and the Chancellor's Associates UC San Diego Award for Excellence in Teaching. He is a distinguished member of both Tau Beta Pi and Phi Beta Kappa.

Professor Robert J. Asaro is a distinguished figure known for his pioneering work in designing and manufacturing large-scale composite structures, particularly focusing on marine applications aimed at bolstering pier strength and safety through innovative pilings. After obtaining his Ph.D. in Materials Science with Distinction from Stanford University, he became a Professor of Engineering at Brown University in 1975. In 1989, he made the transition to UC San Diego, where he assumed the role of Professor in AMES. His prolific career encompasses leadership roles in programs dedicated to the design, fabrication, and comprehensive structural testing of large composite structures, including high-performance ships and marine civil structures. His impactful contributions are evident in his extensive publication record, featuring over 170 research papers in leading professional journals and conference proceedings. His research has earned him prestigious awards, including the NSF Special Creativity Award and the TMS Champion H. Mathewson Gold Medal in 1991. Professor Asaro is an active member of professional organizations such as ASM International, the Physics and Chemistry of Solids Committee, and the Materials Research Society, showcasing his dedication to advancing materials science through his remarkable achievements.

STUDENT NEWS

UC San Diego Supports LIMBER Prosthetics Startup with Landmark Investment

In a groundbreaking move, UC San Diego has allocated seed funding to support LIMBER Prosthetics and Orthotics, a startup initiated by former campus scholars, including Joshua Pelz, a Materials Science and Engineering MS alumnus. LIMBER is at the forefront of transforming the prosthetics landscape, introducing an inventive 3D-printed full-piece prosthetic limb. The investment marks the debut instance of a UC campus directly channeling funding into one of its native spinoffs. UC San Diego's support will drive LIMBER towards its developmental goals while serving as a strong testament to the institution's commitment to fostering internal entrepreneurial initiatives.

In 2016, the roots of LIMBER (Limber Integrative Imaging Modeling Manufacturing for Bold Exoskeleton Research) took hold within Professor Falko Kuester's research group, with a clear aim of enhancing global access to prosthetics. Seamlessly integrating this mission into their doctoral research, Joshua Pelz and Luca De Vivo Nicoloso worked closely to bring this vision to life. Their collaboration with UC San Diego's Institute for the Global Entrepreneur (IGE) provided the foundation for the birth of this startup.

Pelz and De Vivo Nicoloso, joined by prosthetics expert Herb Barrack, have embarked on recurring journeys to Ensenada, Mexico, offering tailored 3D-printed prostheses to amputees. By leveraging smartphone scans, digital schematics, and streamlined 3D printing, their method significantly reduces expenses by up to 50%-90% and revolutionizes accessibility for the global amputee population. Notably, LIMBER places a distinct emphasis on marginalized communities and conflict-affected regions, as evidenced by their recent aid to victims of the war in Ukraine. Since its establishment in 2020, LIMBER has already distributed an impressive count of 32 prosthetic legs across three different countries. Their momentum shows no signs of waning, indicating a promising trajectory ahead.

Ph.D. Student Awarded the 2023 Interdisciplinary Research Award

Ross Turner, a Ph.D. student in Materials Science and Engineering, has been honored with the 2023 Interdisciplinary Research Award. The award is designed to recognize individuals whose research exemplifies a remarkable fusion of theory and methodology drawn from diverse fields. This recognition is bestowed by the Graduate and Professional Student Association (GPSA) in conjunction with the Division of Graduate Education & Postdoctoral Affairs (GEPA) at UC San Diego and is awarded to four outstanding students annually. Each recipient receives a monetary prize and attends an awards ceremony. Ross's research topic is, "Materials for High-Energy Laser Gain Media and Studying Laser Material Interactions".

Join Us!

Application deadline for Fall 2024 admission:
3 January 2024

Graduate Admissions Informational Sessions

Thursday, 2 November 2023
4:00-5:00 PM (Pacific time)
Monday, 20 November 2023
12:30-1:30 PM (Pacific time)
Wednesday, 6 December 2023
4:00-5:00 PM (Pacific time)

All sessions will be via the Zoom platform.
The connection information is:
Meeting ID: 924 4030 6831
Password: 190670

Doctoral Defenses

Dawei Zhang (PI: Jian Luo)
"Compositionally Complex Oxides for Energy Materials"

Diyi Cheng (PI: Shirley Meng, Co-Advisor: Eric Fullerton)
"Deepening the Understanding of Lithium Phosphorus Oxynitride and Associated Interfaces via Advanced Electron Microscopy in All-solid-state Thin Film Batteries"

Xiao Liu (PI: Kenneth Vecchio)
"Development of Complex Concentrated Alloys with Novel Microstructures for Superior Properties"

Wonjun Yim (PI: Jesse Jokerst)
"Phenolic-Enabled Nanoengineering for Biomedical Applications"

Zhaoru Shang (PI: Yu Qiao)
"Intrinsically Nonequilibrium System Enabled by Locally Nonchaotic Barrier"

Maritza Sanchez (PI: Olivia Graeve)
"A Study on Faceted Particle Formation of Perovskites and Oxidation Behavior of Carbides"

Justin Massey (PI: Hyonny Kim)
"Novel Quantitative Composite Delamination Injection Repair Procedure and Characterization for Strength Restoration"

Shuo-En Wu (PI: Tse Nga Ng)
"Design of Printed Ocean Sensor for Real-time Monitoring in Marine Environments"

Yijie Yin (PI: Shirley Meng, Co-Advisor: Zheng Chen)
"Development of Liquefied Gas Electrolytes for Li Metal Batteries"

Guillermo Esparza (PI: Darren Lipomi)
"Solid-Phase Processing Techniques of Optoelectronic Materials for Photovoltaic Applications"

Ross Turner (PI: Javier Garay)
"Materials for High-Energy Laser Gain Media and Studying Laser Material Interactions"

Victoria Petrova (PI: Ping Liu)
"A Study of Conversion Reactions for Nanomaterial Synthesis and Energy Storage Applications"

ALUMNI NEWS

Maritza Sanchez

Could you briefly describe your career path?

I recently completed my Ph.D. in Spring 2023, and I am eagerly anticipating the start of my new role as an Assistant Professor at California State University, Los Angeles this Fall! I had the privilege of teaching at Cal State LA, an experience that has been immensely rewarding as I've had the opportunity to connect with exceptional students and esteemed faculty members within my department. My primary aspiration has always been to find a university where teaching takes precedence. My time at UC San Diego allowed me to discover my true passion for instructing engineering courses.

In retrospect, what were the highlights of the Program in Materials Science and Engineering?

I think one of the highlights of the program was the interdisciplinary nature of the research being conducted by the faculty and graduate students. I learned so much about different areas by simply being in the program and staying engaged. I made it a priority to meet other students, attend seminars, and take courses with various professors. This allowed me to get out of my research topic bubble and stay updated on current materials science research.

What was your thesis topic and how did it impact your future career trajectory?

My thesis topic was composed of two parts: particle morphology control of perovskite materials and oxidation resistance of carbide materials. The second part of my research was a collaboration project that I conducted at the Air Force Research Laboratory, which was crucial in reinforcing my interest in the processing and testing of materials and less on the synthesis. It guided my next steps in my research as I set up my lab at Cal State LA. This experience also allowed me to begin to form connections with future collaborators.

Tianqi Ren

Could you briefly describe your career path?

My career path has been driven by my profound passion for ceramic materials. During my doctoral studies, I pursued industrial R&D internships that focused on ceramic materials, providing me with invaluable practical experience. Afterwards, I began my professional journey at Luminus Inc. where I played a pivotal role in the application-focused development of advanced functional ceramics, including ceramic light converters and transparent ceramic substrates. I contributed to high-volume ceramic manufacturing and oversaw the integration of finished ceramic products.

However, in 2022, I made a significant career shift by joining Corning Incorporated as a Senior Research Scientist, relocating to upstate New York. This transition allowed me to refocus on ceramics research, specifically in the field of energy-related ceramic materials. I now have the privilege of contributing to a diverse portfolio of innovative conceptions and inventions, pushing the boundaries of ceramic technology.

In retrospect, what were the highlights of the Program in Materials Science and Engineering?

The program's standout attribute lies in the wide array of research subjects accessible to students. The involvement of faculty members from diverse departments not only underscores its interdisciplinary nature but also facilitates comprehensive research exploration.

What was your thesis topic and how did it impact your future career trajectory?

My thesis topic was "Exploring the Morphology Control and Formation Mechanisms of Ultra-High Temperature Ceramic Particles: A Study on Tantalum Carbide". This work was purely exploratory and investigated the fundamental aspects of materials science - how ceramic particles grow during reactions and how we can control their growth behavior. On one hand, I thought I could have chosen a topic that's closer to real-world applications. On the other hand, I'm grateful that I chose this topic because it really helped shape my "mind and methodology of research" - to dig deeper when you can and expand the principles you discovered to a wider range of problems. It offered me an abundance of confidence in my career when I was challenged to solve complex scientific and engineering problems. Reviewing the fundamentals improves our ability to effectively problem-solve. To some extent, it also encouraged me to continuously implement the research role in the sequence of "research, development, and engineering".

STAFF UPDATES

Taylor Nelson

Taylor Nelson is the Materials Science and Engineering Lead and Financial Support & Admissions Coordinator. In his spare time, Taylor enjoys running in scenic San Diego and taking long surf trips through Baja California.

Catherine Ingco

Catherine is the Materials Science and Engineering Graduate Program Coordinator. In her free time, Catherine enjoys playing board games and participating in year-round bonfires by the beach with friends and family.

Katie Hamilton

Katie is the Materials Science and Engineering Communications Specialist. In her spare time, Katie enjoys trying local coffee shops, running, writing, cooking, and spending time with her family.

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