Present a symposium on

No Fuel? No Party

Harnessing the Unlimited Potential of Uranium
to Supply Clean Energy to the World

50 Memorial Drive Cambridge, MA 02142 USA (map)
MIT Building (E52 – 7th Floor) Salon M | October 24-25, 2024

PROGRAM

Thursday, October 24, 2024

8:30 am to 9:00 am – CHECK-IN (Building E52-7th Floor Lobby)

9:00 am to 9:20 am – Greetings
Emilio Baglietto, Associate Dept. Head, Nuclear Science and Engineering, MIT
Robert Armstrong, Director Emeritus, MIT Energy Initiative

9:20 am to 9:50 am –INTRO & OBJECTIVES: Fuel economics, supply challenges
Jacopo Buongiorno, Director, Center for Advanced Nuclear Energy Systems (CANES), MIT

SESSION 1: The Current Fuel Landscape
Chair: **Koroush Shirvan**, Associate Professor of Nuclear Science and Engineering, MIT
9:50 am to 10:30am

- State-of-the art TRISO fuel and non-standard TRISO forms | **Dave Petti**, INL (ret).
- How to reduce the fabrication cost of TRISO | **Andrew Davidson**, Project Manager, Specialty Fuels Fabrication and Uranium Recovery, BWX Technologies, Inc.

10:30 am to 10:50 am – *COFFEE BREAK*

SESSION 1: continue
10:50 am to 12:00pm

- HALEU: Status and Implications on fuel reprocessing. Panel-style discussion with:
  Jonathan Hinze | President of UxC, LLC
  Magnus Mori | Head of Market Development and Technical Sales, Urenco
  Nima Ashkeboussi | Vice President, Government Relations and Communications, Global Laser Enrichment
  Temi Taiwo | Director, Nuclear Science and Engineering Division, ANL

WORKING LUNCH
12:00 pm to 1:00 pm – "Is HALEU a proliferation concern?"
Speaker: **R. Scott Kemp**, Associate Professor of Nuclear Science and Engineering, MIT

SESSION 2: One size doesn't fit all: matching the right fuel to the right mission
Chair: **Ericmoore Jossou**, Assistant Professor of Nuclear Science and Engineering, MIT
1:00 pm to 2:20 pm

- LEU/UO2/AGR-style fuel for different reactors and why we don't always need TRISO| **Koroush Shirvan**, MIT
- Metallic fuel | **Randall Fielding**, INL
- Advanced technology fuels for the existing fleet and SMRs |**Al Csontos**, NEI
- The utility perspective |**Jason Murphy**, Constellation

2:20 pm to 2:40 pm – COFFEE BREAK

SESSION 3: Long Term Advanced fuels
Chair: **Daniel Wachs**, Directorate Fellow, Nuclear Fuels and Materials Division, INL
2:40 pm to 4:00 pm

- Inventing new nuclear fuels: the frontier of fuel technology | **Andrew Nelson**, ORNL
- Advanced Moderators |**Lance Snead**, MIT
- SiC/SiC Commercial Development |**Christian Deck**, GA
- Additive Manufactured Fuel Forms |**Joseph Pegna**, FFF

4:20 pm to 6:00 pm – **MIT REACTOR TOUR AND FUEL RESEARCH LAB SPACE |MIT NRL staff**

6:15 PM to 10:00 PM - BANQUET DINNER at Samberg Conference Center
Address: 50 Memorial Drive, Cambridge, MA 02142 (Chang Building -E52- 7th Floor)

- Dinner Speaker | **Kelvin Henderson Duke Energy**, Senior Vice President and Chief Nuclear Officer, Duke Energy

Friday, October 25, 2024

SESSION 4: Acceleration of new fuel development, qualification and commercialization using advances in instrumentation, modeling and simulation
Chair: **Brian Wirth**, UTK
9:00-11:30 – Reduce cost and time to commercialization. Short talks and panel with:

- **Chris Stanek**, LANL
- **Ericmoore Jossou**, MIT
- **Emilio Baglietto**, MIT
- **Sacit Cetiner,** INL/MIT
- **Brian Wirth**, UTK

11:30 am – Adjourn

Biographies

*read full Biographies: https://canes.mit.edu/no-fuel-no-party-symposium

Symposium Session Chairs & Speakers

ARMSTRONG Robert, Director Emeritus, MIT Energy Initiative
ASHKEBOUSSI, Nima, Vice President, Government Relations and Communications, Global Laser Enrichment
BAGLIETTO, Emilio, Associate Dept. Head/ Professor, Nuclear Science and Engineering, MIT
BUONGIORNO Jacopo, Professor, Nuclear Science and Engineering; Director, Center for Advanced Nuclear Energy Systems (CANES), MIT
CETINER, Sacit, Senior Research Scientist, Idaho National Laboratory/ Scientific Director, CRISP Massachusetts Institute of Technology
CSONTOS, Aladar (Al), Director of Fuels, Nuclear Energy Institute
DAVIDSON, Andrew, Project Manager, Specialty Fuels Fabrication and Uranium Recovery, BWX Technologies, Inc.
DECK Christian, Senior Manager, Advanced Materials - Nuclear Technologies and Materials Division, General Atomics
FIELDING, Randall, Idaho National Laboratory
HENDERSON, Kelvin, Senior Vice President and Chief Nuclear Officer, Duke Energy
HINZE, Jonathan, President of UxC, LLC
JOSSOU, Ericmoore, Assistant Professor of Nuclear Science and Engineering, MIT
KEMP, Scott, Associate Professor of Nuclear Science and Engineering, MIT
MORI, Magnus, Head of Market Development and Technical Sales, Urenco
MURPHY, Jason, Constellation
NELSON, Andrew, Distinguished Staff Scientist and Section Head, Nuclear Fuel Development, Oak Ridge National Laboratory
PEGNA, Joseph, Chief Scientist, Free Form Fibers
PETTI, David, Emeritus, Idaho National Laboratory
SHIRVAN Koroush, Associate Professor of Nuclear Science and Engineering, MIT
SNEAD Lance, Director of Strategic Development, Nuclear Reactor Laboratory, MIT
STANEK, Chris, Director Nuclear Energy Programs, Los Alamos National Laboratory
TAIWO, Temi, Director, Nuclear Science and Engineering Division, Argonne National Laboratory
WACHS, Daniel, Directorate Fellow, Nuclear Fuels and Materials Division, Idaho National Laboratory
WIRTH, Brian, UTK

BUONGIORNO Jacopo, Director, Center for Advanced Nuclear Energy Systems (CANES), MIT

Jacopo Buongiorno is the Battelle Energy Alliance Professor in Nuclear Engineering at the Massachusetts Institute of Technology (MIT), a member of the U.S. National Academy of Engineering, the Director of the Center for Advanced Nuclear Energy Systems (CANES), and the Director of Science and Technology of the MIT Nuclear Reactor Laboratory. He has published over 110 journal articles in the areas of reactor safety and design, two-phase flow and heat transfer, nuclear technology innovation and nanofluid technology. For his research work and teaching he won several awards, among which recently the 2022 ANS Presidential Citation. Jacopo is a consultant for the nuclear industry in the area of reactor thermal-hydraulics and safety, and a member of the Accrediting Board of the National Academy of Nuclear Training. He is also a Fellow of the American Nuclear Society, a member of the ASME, past member of the Naval Studies Board (2017-2019), and a participant in the Defense Science Study Group (2014-2015).

JOSSOU Ericmoore, Assistant Professor of Nuclear Science and Engineering, MIT

Ericmoore Jossou is the John Clark Hardwick (1986) assistant professor at MIT in a shared position between the Department of Nuclear Science and Engineering and the Department of Electrical Engineering and Computer Science since July 2023. He previously worked as a staff scientist at the Brookhaven National Laboratory, a U.S. Department of Energy-affiliated lab which conducts research in nuclear and high energy physics, energy science and technology, environmental and bioscience, nanoscience, and national security. Jossou earned a BSc in chemistry from the Ahmadu Bello University, Zaria and a masters in materials science and engineering at the African University of Science and Technology, Abuja. He obtained his PhD in mechanical engineering with a specialization in materials science from the University of Saskatchewan. He currently leads the materials in extreme environment research group, which combines experiments with computational methods to establish structure-properties-performance relationships in materials for nuclear energy applications.

SHIRVAN Koroush, Associate Professor of Nuclear Science and Engineering, MIT

Koroush Shirvan is the Atlantic Richfield Career Development Professor in Energy Studies at the Nuclear Science and Engineering Department at Massachusetts Institute of Technology (MIT). He joined the faculty in July 2017 after serving as a principal research scientist at the Center for Advanced Nuclear Energy Systems (CANES). His area of expertise lies in the development and assessment of advanced nuclear reactor technology, with a current focus on accelerating innovations in nuclear fuels, reactor design, and small modular reactors to enhance the sustainability of current and next-generation power plants. Shirvan's approach involves combining multiple scales, physics, and disciplines to realize innovative solutions in the highly regulated nuclear energy sector. In addition, he serves as the Co-Director of the Nuclear Reactor Technology course for utility executives and is the 2022 recipient of the Reactor Technology Award from the American Nuclear Society.

SNEAD Lance, Director of Strategic Development, Nuclear Reactor Laboratory, MIT

Lance L Snead is a research professor at the Nuclear Reactor Laboratory at MIT and in the Materials Science and Chemical Engineering Department at Stony Brook University. He is currently part of the management team of the reactor laboratory. He received his PhD from Rensselaer Polytechnic Institute in 1992 where he put forward the use of silicon carbide composites as a low-activation material for fusion reactors, laying the ground work for his early career emphasis at ORNL and an international effort in the area which continues today. Dr Snead is a fellow of both the American Nuclear and American Ceramic Societies and was named Distinguished Battelle Engineer and Corporate Fellow of ORNL in 2012. He was recipient of the American Nuclear Society Seaborg Medal in 2015 for outstanding scientific contributions to the development of peaceful uses of nuclear energy. He currently serves as associate editor for the Journal of Nuclear Materials. His research activities are equally divided between fusion and fission systems and includes both development of new materials and determination of their performance under irradiation environments. He has published over 300 archival publications and has been cited over 17,000 times. He is the lead inventor on numerous patents.

Robert C. ARMSTRONG| Former Director, MIT Energy Initiative; Chevron Professor of Chemical Engineering, Emeritus

Professor Robert C. Armstrong is the Chevron Professor of Chemical Engineering, Emeritus and Professor of Chemical Engineering Post Tenure at the Massachusetts Institute of Technology. He was a full-time member of the MIT faculty from 1973 – 2023. Armstrong was the longest serving director of the MIT Energy Initiative, an Institute-wide effort at MIT linking science, technology, and policy to transform the world's energy systems. He served as director of MITEI from 2013 to 2023, after serving as the organization's deputy director from 2007-2013 with founding director Ernest Moniz. Armstrong served as head of the Department of Chemical Engineering from 1996 to 2007. His research is focused on pathways to a low-carbon energy future.

Armstrong has been elected into the American Academy of Arts and Sciences (2020) and the National Academy of Engineering (2008). He received the 2006 Bingham Medal from the Society of Rheology, which is devoted to the study of the science of deformation and flow of matter, and the Founders Award (2020), Warren K. Lewis Award (2006), and the Professional Progress Award (1992) from the American Institute of Chemical Engineers.

Armstrong chaired MIT's 2022 *Future of Energy Storage* study and was a member of MIT's *Future of Natural Gas* and *Future of Solar Energy* study groups. He was also chair of the 2024 MITEI report on *The Role of Fusion Energy in a Decarbonized Electricity System*, done in collaboration with the MIT Plasma Science and Fusion Center. He advised the teams that developed MITEI's recent reports, *The Future of Nuclear Energy in a Carbon-Constrained World* (2018) and *Insights into Future Mobility* (2019). He co-edited *Game Changers: Energy on the Move* with former U.S. Secretary of State George P. Shultz.

ASHKEBOUSSI, Nima, Vice President, Government Relations and Communications, Global Laser Enrichment

Nima ASHKEBOUSSI is the Vice President for Government Relations and Communications at Global Laser Enrichment where he leads the policy, legislative, and communication efforts to support the commercialization of next generation laser enrichment technology. Prior to joining GLE, he was Sr. Director for Fuel and Radiation safety at the Nuclear Energy Institute, managing policy, regulatory, and market issues associated with the nuclear fuel cycle, transportation, research and test reactors, and radiation protection. Before joining NEI in 2015, he spent 13 years with the U.S. Nuclear Regulatory Commission in a variety of roles. Nima has a bachelor's degree in mechanical engineering from the University of Maryland and a master's degree in environmental planning and management from The Johns Hopkins University.

Emilio BAGLIETTO, Associate Dept. Head/ Professor, Nuclear Science and Engineering, MIT

Emilio BAGLIETTO is Associate Professor of Nuclear Science and Engineering at the Massachusetts Institute of Technology (MIT) and PhD Graduate of the Tokyo Institute of Technology. His research goals include improving the effectiveness and expanding the reach of 3-D, first-principles computational tools for nuclear reactor design. He notes that this work is applicable at the micro scale, to better understand physical interactions; at the component scale, to optimize designs; and at the full-system level, to validate new designs while taking into account complex system interactions. As a result, the technology promises to be a starting point for entirely new generations of innovation in a wide range of areas. He covers the role of Thermal Hydraulic Focus Area Lead for the Consortium for Advanced Simulation of Light-Water Reactors (CASL), the largest US Department of Energy program in the Nuclear Energy field.

Sacit CETINER, Senior Research Scientist, Idaho National Laboratory/ Scientific Director, CRISP Massachusetts Institute of Technology

Dr. Sacit Cetiner is a Senior Research Scientist at Idaho National Laboratory (INL) with a joint appointment at Massachusetts Institute of Technology (MIT) as the Scientific Director for the INL/MIT Center for Reactor Instrumentation and Sensor Physics (CRISP). Before joining INL and MIT, Dr. Cetiner worked at Oak Ridge National Laboratory (ORNL) focusing on instrumentation and controls (I&C) technologies for advanced reactors. He served as the DOE Technical Point of Contact for the Versatile Test Reactor (VTR) Experiment I&C Technical Area, and as the Technical Lead for Transformational Challenge Reactor (TCR) I&C System.

CSONTOS, Aladar (Al), Director of Fuels, Nuclear Energy Institute

Dr. Aladar (Al) CSONTOS is the Director of Fuels at the Nuclear Energy Institute overseeing the industry efforts to deploy advanced fuels with increased enrichment and higher burnups with accident tolerant features and addressing various nuclear waste issues. Prior to NEI, he was a Technical Executive at the Electric Power Research Institute in the Fuel, Chemistry, Low-Level Waste and High-Level Waste group. Prior to EPRI, he spent 16 years at the U.S. Nuclear Regulatory Commission in various technical and leadership roles. He led teams of engineers responsible for technical safety reviews of transportation cask designs, spent fuel storage cask designs, independent spent fuel storage renewals and directed multi-disciplinary staff with expertise in non-destructive testing, materials science, and mechanical engineering focused on structural integrity issues of reactor components. Prior to NRC, he worked at the Center for Naval Analyses and conducted operational research studies for the U.S. Navy and Marine Corps. Dr. Csontos received his degrees in Materials Science and Engineering from the Johns Hopkins University (B.S) and University of Virginia (Master's & Ph.D). Some of his awards include the 2006 Joint Minerals, Metals, and Materials Society and Japanese Institute of Metals Young Leader International Scholar Award, 2003 Minerals, Metals, and Materials Society Young Leader Professional Development Award, most outstanding technical research paper of 2002 by the Society of Automotive Engineers, and the Professor Robert B. Pond, Sr. Undergraduate Achievement Award. He is also a graduate of the U.S. Army Airborne Infantry School and authored over 40 journal publications.

DAVIDSON, Andrew, Project Manager, Specialty Fuels Fabrication and Uranium Recovery, BWX Technologies, Inc

Andrew DAVIDSON is the project manager for specialty fuels fabrication and uranium recovery for BWXT Nuclear Operations Group, Inc., a subsidiary of BWX Technologies, Inc. In this role, he is responsible for financial and schedule performance for TRISO fuel production and uranium recovery operations, leading teams to achieve production objectives while meeting stringent safety, quality, and regulatory requirements in BWXT's NRC Category 1 License facility in Lynchburg, Virginia.

Mr. Davidson has more than twenty years of nuclear manufacturing experience with the company and its subsidiary Nuclear Fuel Services, Inc. (NFS). He previously served as the plant manager at the Lynchburg Technology Center (LTC) for BWXT Nuclear Operations Group, Inc., overseeing all operations at a 40,000-square-foot nuclear-licensed laboratory that performs work for commercial and government customers including advanced nuclear materials development. During his tenure, he also held the positions of highly enriched uranium downblending program manager and downblending process engineering section manager at NFS.

Mr. Davidson earned a Bachelor of Science in chemical engineering from Bucknell University and a Master of Business Administration from the University of Tennessee.

DECK Christian, Senior Manager, Advanced Materials - Nuclear Technologies and Materials Division, General Atomics

Christian DECK has been with General Atomics since 2009 and is the senior manager of the Advanced Materials group within the Nuclear Technologies and Materials division at General Atomics Electromagnetic Systems. He earned his B.S in Mechanical Engineering and his Ph.D. in Materials Science and Engineering from the University of California, San Diego. In his time at GA-EMS, he established and expanded the ceramic matrix composite processing capabilities and works to develop materials for extreme environment applications by developing, controlling, and combining material fabrication techniques. He started this work with silicon carbide ceramic composites for advanced nuclear fission reactors and nuclear fusion, adapted these composites to Accident Tolerant Fuel (ATF) for existing reactors, and more recently expanded into space nuclear and hypersonic applications. These projects range from early-stage fabrication and performance demonstrations to maturing and scaling-up manufacturing processes. Over his career he has served as principal investigator on a wide range of DOE- and DOD-funded projects, including development of engineered ATF cladding for light water reactors, ultra-high temperature ceramic composite liners for nuclear thermal propulsion, alternative hypersonic aerostructures, and internally funded projects focused on new materials, applications, and cost-effective manufacturing of high-performance ceramic matrix composites. He has initiated multiple collaborations with industry, academia, and national labs and has dozens of publications and holds several patents in the areas of ceramic matrix composite technology, nanotechnology, and materials performance in nuclear and other extreme environments.

FIELDING, Randall, Idaho National Laboratory

Randall FIELDING has worked in the area of fuel fabrication, with an emphasis on metal fuels, at the Idaho National Laboratory since January 2001. During this time, he has become a leading expert in metallic fuel fabrication, led fabrication development projects in advanced casting, extrusion, gas fast reactor fuel development, and experiment assembly. He has also fabricated and assembled several materials and fuels irradiation tests for both domestic and international test reactors. Over the course of his career he has reviewed and developed plans for remote and “fresh” fuel fabrication plants as part of various DOE programs. Currently he serves as the technical Deputy Technical Area lead for Fabrication and Properties for Advanced Reactors in the Advanced Fuels Campaign and is the Metal Fuel Development group lead within the Advanced Manufacturing and Development Department.

Mr. Fielding received a Bachelor’s Degree in Metallurgical Engineering from University of Idaho in 2000, a Master’s Degree in Materials Engineering from University of Idaho in 2005.

HENDERSON, Kelvin, Senior Vice President and Chief Nuclear Officer, Duke Energy

Kelvin HENDERSON serves as senior vice president and chief nuclear officer for Duke Energy. He is responsible for the safe and efficient operation of the nation's largest regulated nuclear generating fleet.

Before assuming his current position in December 2020, Kelvin oversaw the company's nuclear operations in North Carolina as senior vice president of nuclear operations. He served in this role since 2017 and had lead responsibilities for the Brunswick, Harris and McGuire plants.

Kelvin brings more than 30 years of experience to the position and a deep knowledge of nuclear operations. He served as senior vice president of nuclear corporate with responsibility for Duke Energy's nuclear corporate functions, including nuclear engineering, nuclear major projects, corporate governance and operations support, and organizational effectiveness.

He served as the site vice president of Catawba Nuclear Station in York, S.C., where he was responsible for the safe and reliable operation of the two-unit, pressurized water-reactor generating facility. He directed station and facilities management, operations, maintenance, chemistry and radiation protection, engineering, nuclear and industrial safety, and business operations.

Kelvin joined Progress Energy in May 1998 in the operations department at Harris Nuclear Plant near New Hill, N.C. He served in a variety of leadership roles at the plant, including plant manager, maintenance manager and on-line scheduling supervisor. He was named general manager of nuclear fleet operations for Progress Energy in 2011 and site vice president of Catawba Nuclear Station following the merger between Duke Energy and Progress Energy in 2012. He was named senior vice president of nuclear corporate in 2016.

Before joining Progress Energy, Kelvin was a control room unit supervisor at Zion Nuclear Station for Commonwealth Edison (an Exelon Company) in Zion, Ill. He received a senior reactor operator license from the U.S. Nuclear Regulatory Commission for Zion in July 1993.

A native of Zion, Ill., Kelvin earned a Bachelor of Science degree in mechanical engineering from Bradley University in Peoria, Ill. Kelvin and his wife, Stephanie, have three daughters.

Duke Energy, one of the largest energy holding companies in the United States, supplies and delivers electric services to approximately 8.2 million customers in the Southeast and Midwest. The company also distributes natural gas services to approximately 1.6 million customers in the Carolinas, Ohio, Kentucky and Tennessee. Headquartered in Charlotte, N.C., Duke Energy is a Fortune 150 company traded on the New York Stock Exchange under the symbol DUK.

HINZE, Jonathan, President of UxC, LLC

Jonathan HINZE is President of UxC, LLC (UxC), the world's leading nuclear fuel cycle market research and analysis firm. He has been active in the international nuclear industry since 2001. Mr. Hinze assumed the position of President of UxC in February 2018, having been at the company since 2006. During his tenure at UxC, he has helped to significantly expand the company's nuclear market analytics and product offerings. With many years of direct experience in the nuclear industry, Mr. Hinze has extensive knowledge of the nuclear fuel cycle and reactor markets. One of his main areas of focus has been nuclear reactor developments and global nuclear power forecasting as well as analyzing the future of the nuclear fuel markets and the reactor supply chain. Prior to his entry in the nuclear industry, Mr. Hinze also worked in positions in government, industry, and education in several countries, including the U.S., Germany, and Japan. He is fluent in English, German, and Japanese. Mr. Hinze received a Bachelor of Arts in East Asian Studies from Haverford College and a Master of Arts in International Trade and Investment Policy from The George Washington University.

KEMP, Scott, Associate Professor of Nuclear Science and Engineering, MIT

R. Scott KEMP is an Associate Professor of Nuclear Science and Engineering where he directs the MIT Laboratory for Nuclear Security and Policy. Scott served as Science Advisor in the U.S. State Department's Office of the Special Advisor for Nonproliferation and Arms Control. He is a Fellow of American Physical Society, recipient of the Sloan Research Fellowship in Physics, and a member of the JASON defense advisory group.

MORI, Magnus, Head of Market Development and Technical Sales, Urenco

Dr. Magnus Mori joined Urenco's Commercial team in 2017 and is now leading the company's commercial strategy to deliver products and services for advanced fuels.

Nuclear energy has been Magnus' passion from age seven, when he first saw the blue glow of Cherenkov's radiation in a documentary. Today he is the Head of Market Development and Technical Sales at Urenco.

Magnus has over 25 years of experience in the nuclear sector, where he has held a wide variety of roles ranging from regulations and licensing to new build and operations, from research and development to leadership and management.

He is an active voice advocating for nuclear energy and its role in decarbonising the world's energy supply.

Magnus holds a Ph.D. in Mechanical and Nuclear Engineering from the University of Stuttgart in Germany.

MURPHY, Jason, Vice President Of Nuclear Fuels Constellation

Jason Murphy is a Vice President of Nuclear Fuels at Constellation, with extensive experience in various leadership roles at Exelon Nuclear prior to their current position. Jason holds a Bachelor of Science in Mechanical Engineering from Carnegie Mellon University.

NELSON, Andrew, Distinguished Staff Scientist and Section Head, Nuclear Fuel Development, Oak Ridge National Laboratory

Dr. Andrew T. NELSON is a distinguished staff scientist and section head of the Nuclear Fuel Development Section at Oak Ridge National Laboratory. The Nuclear Fuel Development Section is approximately 70 full time research staff and further includes numerous postdoctoral fellows, full time graduate students, and other visiting researchers. Dr. Nelson's research interests are focused on the development and assessment of ceramic nuclear fuel forms, with an emphasis on advanced fuel systems for light water reactors. He is also active in development of dispersion and particle fuel concepts for advanced reactor applications. Dr. Nelson has held leadership roles in multiple U.S. Department of Energy nuclear material development programs.

https://www.ornl.gov/staff-profile/andrew-t-nelson

PEGNA, Joseph, Chief Scientist, Free Form Fibers

DR. PEGNA'S professional experience includes industry, academia and entrepreneurship. Joe has been a leading thinker and researcher in Additive Manufacturing (AM) since its inception in the 1980's. In the 1990's he pioneered the application of AM for construction automation. He is also among a handful of international researchers to have pioneered Material-Agnostic AM. This research led to the creation of Free Form Fibers, a unique source of laser-printed high-purity powders, fibers, and non-woven fabrics for extreme environments, for which he holds 27 domestic and international patents. He has co-authored over 100 multidisciplinary articles.

His research has been recognized by professional societies and the National Academy of Engineering, as a Frontier Fellow. In 1990, he was awarded a National Science Foundation Presidential Investigator award for his work in Computer Aided Design and Manufacturing applied to multimaterial structures. In 2001, he was awarded the Canada Research Chair professorship in Free Form Fabrication at the University of Montreal. His contributions to Engineering Education have been recognized by the American Society of Engineering Education (ASEE) for the introduction of reverse-engineering into team Capstone Design Projects.

Joe co-founded Free Form Fibers in 2006 as a spinoff of the Canada Research Chair. He now serves as full-time Chief Scientist and is a member of the Board of Directors. In addition, he served two two-year terms as treasurer and board member of the United States Advanced Ceramics Association (USACA). Joe received his undergraduate education in mathematics and physics in France. During service in the French Army, he earned multiple graduate degrees in mechanical design, automated manufacturing, and computer automation. After working as research engineer for the oil industry for four years, he earned a Ph.D. in Mechanical Engineering from Stanford University in 1988.

PETTI, David, Emeritus, Idaho National Laboratory

Dr. David PETTI is a graduate of the MIT Nuclear Engineering Department and has been recognized as a Fellow at both Idaho National Laboratory and the American Nuclear Society. He recently retired from the Idaho National Laboratory after 35 years of experience in nuclear technology for both fission and fusion systems. He was the director of the Nuclear Fuels and Materials Division at INL and was also the Nuclear Science and Technology Directorate's chief scientist. More recently, he was the Executive Director of MIT's study entitled The Future of Nuclear Energy in a Carbon-constrained World. He is currently a member of the Nuclear Regulatory Commission's Advisory Committee on Reactor Safeguards and a Senior Editor for the Journal of Nuclear Materials. He was elected to be a member of the National Academy of Engineering in 2022.

STANEK, Chris, Director Nuclear Energy Programs, Los Alamos National Laboratory

Chris STANEK is the Director Nuclear Energy Programs at Los Alamos National Laboratory. He was formerly the National Technical Director of the U.S. DOE, Office of Nuclear Energy, Advanced Modeling and Simulation – NEAMS – program from 2015 to 2024. Before leading the NEAMS program, he the led nuclear materials and fuels research effort in the Consortium for Advanced Simulation of LWRs (CASL) Energy Innovation Hub. Stanek received his B.S. in Materials Science and Engineering at Cornell University and his Ph.D. in Materials from Imperial College London under the supervision of Sir Robin Grimes. His research has focused on advanced modeling and simulation for nuclear energy and he has published more than 120 papers on these and related topics. He is also on the editorial advisory board of *Nuclear Engineering and Design*, an associate editor of the *Journal of Nuclear Material*s, and a member of the American Nuclear Society technical journals committee.

TAIWO, Temi, Director, Nuclear Science and Engineering Division, Argonne National Laboratory

Dr. Temitope TAIWO is the Director of Argonne's Nuclear Science and Engineering Division. He has worked in the nuclear industry, research laboratory, and U.S. government in the areas of reactor design, methods development, and analysis. He has been at Argonne since 1990 and in that time has led research teams and developed computational tools and methods and performed analysis of nuclear energy systems, including fast and thermal reactors. During 1995 to 1996, he performed assessments of international nuclear security and non-proliferation issues for the U.S. Government. Prior to employment at Argonne, he worked as a nuclear reactor analyst at the Northeast Utilities in Connecticut, where he was part of the code development and reactor analysis team. He developed nuclear analysis computer models and methods in support of Light-Water-Reactor core reloads, and designed and analyzed reload cycles. Dr. Taiwo was previously the National Technical Director of the Systems Analysis and Integration Campaign of the DOE Nuclear Fuel Cycle and Supply Chain office. He was formerly a co-Dean of the Modeling, Experimentation and Validation (MeV) Summer School. He is a Fellow of the American Nuclear Society (ANS) and currently serves as a member of the Board of Directors of the society. Dr. Taiwo has a Ph.D. in Nuclear Engineering, from the Massachusetts Institute of Technology, and a B.Sc. in Engineering Physics (Nuclear Option) from the University of Ife, Nigeria.

WACHS, Daniel, Directorate Fellow, Nuclear Fuels and Materials Division, Idaho National Laboratory

Dr. Daniel WACHS, Directorate fellow, Idaho national laboratory nuclear fuels and materials division. Served as the National technical director for the doe advanced fuels campaign covering the full spectrum of nuclear fuel technology research including both near-term aft program and the new next generation fuels program (consisting of innovative lwr, metal sfr, triso, and molten salt fuels). Over 25 years experience in nuclear fuel testing and development.

WIRTH, Brian, UTK

Brian WIRTH, Directorate fellow, Idaho national laboratory nuclear fuels and materials division. Served as the National technical director for the doe advanced fuels campaign covering the full spectrum of nuclear fuel technology research including both near-term aft program and the new next generation fuels program (consisting of innovative lwr, metal sfr, triso, and molten salt fuels). Over 25 years experience in nuclear fuel testing and development.

Participants

Participants

	Name/ Affiliation
A	**AFZAL Ryan,** Tufts University
	AHUACTZIN-GARCIA Emilio, Massachusetts Institute of Technology / NRL
	ALANKAR Melinda, Anthropocene Institute
	ALDEIA MACHADO, Luiz Penn State
	ALGARD Alex, A5 Capital
	ALI Zulfe, Velerity Group
	ANGELICI Valentina, MPR Associates
	ARANDA Brandon, Massachusetts Institute of Technology
	ARMSTRONG Robert, Massachusetts Institute of Technology
	ASHIZAWA Muneharu, Tokyo Electric Power Company
	ASHKEBOUSSI Nima, Global Laser Enrichment
B	**BAGLIETTO Emilio,** Massachusetts Institute of Technology
	BALLA Sai Prasad, Massachusetts Institute of Technology
	BANCEL Matthieu EDF
	BARALE Heddy, Massachusetts Institute of Technology
	BARBARESCHI VILLA Andrea, Ricerca sul Sistema Energetico
	BIEGEL Kathryn, Constellation Energy
	BRITT Jack, Nuclear Energy Institute
	BUCCI Matteo, Massachusetts Institute of Technology
	BUDINGER Bill, Rodel Foundation
	BUONGIORNO Jacopo, Massachusetts Institute of Technology
C	**CARAYANNOPOULOS Loukas,** Massachusetts Institute of Technology
	CARMACK Jon, Department of Energy
	CARRINGTON Carolyn, Massachusetts Institute of Technology
	CASULA Roberto, Femto Energy UK
	CERVENKA Petr, Massachusetts Institute of Technology
	CETINER Nesrin, Massachusetts Institute of Technology
	CETINER Sacit, Idaho National Laboratory/Massachusetts Institute of Technology
	CHANG Kunok, Kyung Hee University
	CHE, Yifeng, Idaho National Laboratory
	CHOI Youyeon, Massachusetts Institute of Technology
	CLARK James, National Nuclear Laboratory
	CLEVELAND Mack, Massachusetts Institute of Technology
	COHEN Armond, Clean Air Task Force

Participants

	Name/ Affiliation
	COOPER, Ed Wyoming Senate
	CSONTOS Aladar (Al), Nuclear Energy Institute
D	**DAVIDSON Andrew,** BWX Technologies
	DECK Christian, General Atomics Electromagnetic Systems
	DOMENIGHINI Piergiovanni, Ricerca sul Sistema Energetico
E	**EBIWONJUMI Bamidele,** Massachusetts Institute of Technology
	EGUIGUREN Luis, Lawrence Livermore National Laboratory
	ENSOR Brendan, Naval Nuclear Laboratory
F	**FAIRCHILD Jamie,** Nuclear Energy Agency
	FAYFAR Sean, Massachusetts Institute of Technology / NRL
	FAZI Andrea, Massachusetts Institute of Technology
	FIELDING Randall, Idaho National Laboratory
	FORSBERG Charles, Massachusetts Institute of Technology
	FORSYTH Chris, Massachusetts Institute of Technology
	FORTIER Lauren, Massachusetts Institute of Technology
	FRANZ Patrick, PFYN CAPITAL AG
	FREDA Robert (Rob), Massachusetts Institute of Technology/ Affiliate
	FREER Randy, Global Catalyst
G	**GALLOWAY Steven,** Montana House of Representatives Vice Chair of Energy Committee
	GERMONPRE Emile, Massachusetts Institute of Technology
	GIANARIKAS George, Canaccord Genuity
	GLIDDEN Patricia, Massachusetts Institute of Technology
	GUILD Laura, Massachusetts Institute of Technology
H	**HALIMI Assil**, Massachusetts Institute of Technology
	HAMPSON Taylor, Massachusetts Institute of Technology
	HARKIN Michael, Framatome
	HARRUP Anthony, Massachusetts Institute of Technology
	HAUPTMAN Sara, Massachusetts Institute of Technology
	HAVENNER Mark, Renovata
	HENDERSON Kelvin, Duke Energy
	HINZE Jonathan, UxC, LLC
	HULT Philip, Generation Atomic
	HULTQUIST Riley, Massachusetts Institute of Technology
	HUSAIN Ausaf, Emirates Nuclear Energy Corporation
	HYDE Timothy, Idaho National Laboratory

Participants

	Name/ Affiliation
J	**JESSUP William,** NOV Shepherd Power
	JOHNSTON Maren, Massachusetts Institute of Technology
	JOSSOU Ericmoore, Massachusetts Institute of Technology
K	**KADAK Andrew**, KADAK ASSOCIATES, INC.
	KANG Dokyu, Korea Atomic Energy Research Institute
	KASH Ben, Massachusetts Institute of Technology
	KAO Shih-Ping, ENERCON
	KATO Yukitaka, Tokyo Institute of Technology Laboratory for Zero-Carbon Energy
	KEMP Scott, Massachusetts Institute of Technology
	KIM JiHwan Hyundai Engineering & Construction
	KO YuChih, TerraPower
	KOHSE Gordon, Massachusetts Institute of Technology / Nuclear Reactor Laboratory
	KUDRIAVTSEVA Anna, Clean Core Thorium Energy
	KWAGYAN Karikari, Massachusetts Institute of Technology
L	**LAHODA Edward**, Westinghouse Electric Company LLC
	LE Vu Anh, Massachusetts Institute of Technology
	LEE Dong Hun, UNIST
	LEDFORD Zachary, GE-Hitachi Nuclear Energy
	LESICA Susan, US Department of Energy
	LI Ju, Massachusetts Institute of Technology
	LI Mingda, Massachusetts Institute of Technology
	LIAN Jie, Rensselaer Polytechnic Institute
	LIU Wenfeng, Structural Integrity Associates, Inc.
	LUANGDILOK Wison, H2Technology
	LYONS John, Westinghouse Electric Company
M	**MANFRED Nicolas**, GE Vernova
	MANNION Tyler, Canaccord Genuity
	MAITLAND Charlie, Generation Atomic
	MAZZOCCO Lorenzo, Massachusetts Institute of Technology
	MERVIS Alec, MPR Associates
	MEWBOURNE Dee , Quadrant Nuclear
	MITCHELL David, Aeronuclear
	MOEYKENS Riley, Massachusetts Institute of Technology
	MOORE Steve, Massachusetts Institute of Technology/ Affiliate

Participants

	Name/ Affiliation
	MORI Magnus, Urenco
	MORRISS Nick, NOV Shepherd Power
	MURAKAMI Yoichi, Institute of Science Tokyo (previous Tokyo Institute of Technology)
	MURO ALVARADO Marcelo Andre, Ricerca sul Sistema Energetico
	MURPHY Jason, Constellation
N	**NARANJO DE CANDIDO Isabel**, Massachusetts Institute of Technology
	NEDZBALA Hannah, NYSERDA
	NELSON Andrew, Oak Ridge National Laboratory
	NICOLAS Michael, Canadian Nuclear Safety Commission
	NOLFI Rachael, GE Hitachi
O	**O'BRIEN Brandi**, WY Dept of Environmental Quality-URP
	O'HARA Nick, Renovata
	OKUMURA Alison, Massachusetts Institute of Technology
	ORTMAN Sarah, GE Vernova
	OTGONBAATAR Uuganbayar, Constellation Energy
P	**PALUDETTO Gabriele**, Ricerca sul Sistema Energetico
	PARK Gyutae, Massachusetts Institute of Technology
	PARSONS John, Massachusetts Institute of Technology / CEEPR
	PATER James, Naval Nuclear Laboratory
	PATEL Sonal, POWER Magazine
	PEGNA Joseph, Free Form Fibers
	PERCHER Catherine, Lawrence Livermore National Laboratory
	PETRIE Christian, Oak Ridge National Laboratory
	PETTI David, Consultant
	PISINGER Mateo, Massachusetts Institute of Technology
Q	**QUICK Kevin**, Framatome
R	**RASHID Joe**, SI Solutions, LLC
	RASMUSSEN Neil, MIT Corporation
	RICHARDSON Clay BWX Technologies, Inc.
	RHA Eunbi, Massachusetts Institute of Technology/ Nuclear Science and Engineering Dept.
	RYAN Brianna, Massachusetts Institute of Technology
S	**SCHAUB Sean**, Wyoming Energy Authority
	SCHURR Kevin, Massachusetts Institute of Technology

Participants

	Name/ Affiliation
	SEARS Caroline, Massachusetts Institute of Technology
	SHAH Manan, Clean Core Thorium Energy
	SHAH Milan, Clean Core Thorium Energy
	SHIRVAN Koroush, Massachusetts Institute of Technology
	SIMONNE David, Massachusetts Institute of Technology
	SNEAD Lance, Massachusetts Institute of Technology/Stony Brook University
	SONG JinHo, HanYang University
	SPENCER Madalena, Canadian Nuclear Labs
	STANEK Chris, Los Alamos National Laboratory
T	**TAIWO Temitope**, Argonne National Laboratory
	TODREAS Neil, Massachusetts Institute of Technology
	TOTEMEIER Aaron, Electric Power Research Institute
	TRINI CQSTELLI Auro, Otherwordly
	TOUGAIT Olivier, FRAMATOME
	TUANA Daniel, Massachusetts Institute of Technology
	TUZ ANDRII, Massachusetts Institute of Technology / NRL
U	**URCIOLI Vittorio**, Ricerca sul Sistema Energetico
V	**VASQUEZ Angel**, Massachusetts Institute of Technology
	VELEZ-LOPEZ Enrique, Boston Atomics
	VENTURINI Simone, Ricerca sul Sistema Energetico
	VERVLIED Jeff, Free Form Fibers LLC
W	**WACHS Dan**, Idaho National Laboratory
	WAINWRIGHT Haruko , Massachusetts Institute of Technology
	WHITTAKER Andrew, University at Buffalo
	WIRTH Brian, University of Tennessee, Knxoville
	WUN Edith, Massachusetts Institute of Technology
Y	**YILDIZ Bilge**, Massachusetts Institute of Technology
	YIP Sidney, Massachusetts Institute of Technology
	YONEDA Shuji, The Federation of Electric Power Companies of Japan
	YOSHIDA Katsumi, Institute of Science Tokyo
	YU JIANKAI, Massachusetts Institute of Technology
Z	**ZUANAZZI Luca**, Ricerca sul Sistema Energetico