



ENERGY INNOVATION



Robin Miles is the High Performance Computing for Energy Innovation (HPC4EI) Director. Robin earned a B.S. in mechanical engineering from the Massachusetts Institute of Technology, a M.S. in mechanical engineering from Stanford University, and a M.B.A. from the University of California at Berkeley. Robin started working at Lawrence Livermore National Laboratory (LLNL) after working at several Silicon Valley start-up companies such as Redwood Microsystems and K2 Optronics where she led product development teams. At LLNL Robin developed micro-fluidic-based instrumentation for the chemical and biological detection programs. She was also involved in building targets for fusion experiments and led the team working on target manufacture and delivery for concept fusion electric plants. She is currently the Deputy Division Leader for LLNL's National Security Engineering Division (NSED) and was formerly the HPC4Mfg and HPC4Mtls project manager. She is the author of several patents and publications.



Dr. Aaron Fisher has long experience in simulation code development, utilizing multiphysics CFD codes, HPC, and integrating these skills to solve industry problems. These efforts stretch back to the late 1990s with work at Sandia National Laboratories on next generation lithography in collaboration with the microprocessor industry. Recently Aaron has been leading efforts to work with the steel industry partners to model and improve steel making processes.



David Martin is Manager of Industry Partnerships and Outreach at the Argonne Leadership Computing Facility at Argonne National Laboratory, where he works with industrial users to harness high performance computing and take advantage of the transformational capabilities of modeling and simulation. David also is co-Executive Director of the Exascale Computing Project's Industry Council and a Visiting Research Engineer at Northwestern University's International Center for Advanced Internet Research. David brings broad industry and research experience to the roles. Prior to joining ALCF, David led IBM's integration of internet standards, grid and cloud computing into offerings from IBM's Systems and Technology Group. Before IBM, David managed networks and built network services for the worldwide high-energy physics community at Fermilab. David began his career at AT&T Bell Laboratories, doing paradigm-changing work in software engineering and high-speed networking. David has a BS from Purdue and an MS from the University of Illinois at Urbana-Champaign, both in Computer Science.



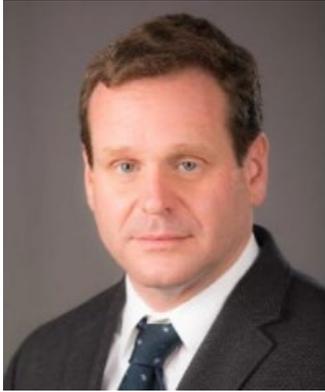
Victor Beck is a Research Engineer in the Computational Engineering Division at Lawrence Livermore National Laboratory. His research is focused on developing and using numerical tools to analyze and design electrochemical, fluid, heat, and mass transfer systems. Recent application areas include flow batteries, electrochemical CO₂ reduction reactors, porous electric double-layer capacitors and thermocatalytic Fischer-Tropsch systems. At LLNL he has also worked on the simulation of drop-on-demand metal jet printing and the simulation of industrial spray drying. Prior to joining the lab in 2016, he served as a Member of the Research Staff at Xerox PARC, where he worked on novel additive manufacturing technologies and developed the foundational technology for the filament extension atomizer. Previously, he was a Senior Postdoctoral Scholar in the Bioengineering Department at Caltech and an Engineer at ExxonMobil. He holds Ph.D. and M.S degrees from Stanford University and a B.S. from Northwestern University, all in Chemical Engineering. He has 31 granted patents and 9 publications.



Boyan Lazarov is a Research Engineer in the Computational Engineering Division at Lawrence Livermore National Laboratory. His research focuses on the development of methods and tools to model, design, and optimize coupled multi-physical systems with the help of high-performance computing. Application areas include fluid-heat transfer systems, photonics, acoustics, structural and mechanical designs in the automotive and aerospace industries. Before joining the lab in 2019, he held a Senior Lecturer position in mechanical and aerospace engineering at the University of Manchester, UK, a Senior Scientist position at the Technical University of Denmark, and several visiting scholar and industrial engineering positions in US, UK, and Germany. He holds Ph.D. from the Technical University of Denmark in Mechanical engineering, and he has more than 50 peer-reviewed journal papers.



Dr. Rekha Rao is a Distinguished Member of Technical Staff at Sandia National Laboratories. She came to Sandia in 1990 after earning her BS from UC Berkeley and Ph.D. from the University of Washington, both in Chemical Engineering. Rekha is an expert in the computational mechanics of complex fluids, including theoretical development, numerical algorithms, and finite element implementation. She is one of the founding authors of Goma 6.0, an R&D 100 winning open source software package for process flow modeling. She has authored or coauthored over 109 peer-reviewed journal articles, reports, and conference proceedings. Rekha's research has spanned model development in support of energy-production, environmental issues, polymer processing, and manufacturing. Her work on foam process models have led to publications, collaborations with industry, and to a production computational capability impacting manufacturing yields. Rekha is the Chair of the Female Research Committee of the International Association of Computational Mechanics, mentoring and encouraging women in computational mechanics. Rekha is the Secretary-Treasurer of the US Association of Computational Mechanics, where she will rotate into the position of President in 2024, making her the first female President of the organization.



Michael Martin is a staff scientist at the National Renewable Energy Laboratory in the Computational Sciences Center, and NREL's point of contact for the HPC4EI program. His research focuses on computational fluid dynamics and heat transfer for extreme environments. Prior to joining NREL he held research appointments at Louisiana State University, NASA-JPL and the Naval Research Laboratory, as well as science policy positions in the Department of Energy and the United States Senate. Dr. Martin is currently a member of the ASME's Energy and Public Policy committee. His professional honors include the Department of Energy Secretary's Appreciation Award, the American Society of Mechanical Engineers (ASME) Congressional Fellowship, Associate Fellow of the American Institute of Aeronautics and Astronautics (AIAA) as well as multiple teaching awards. He received his PhD in Aerospace Engineering, MS in Mechanical Engineering, and MA in East Asian Studies from the University of Michigan, his MS in Science and Technology Studies from Virginia Tech, and his BS in Mechanical Engineering from the University of Florida.



Dr. Iver E. Anderson earned his Ph.D. and M.S. in metallurgical engineering in 1982 and 1977, respectively, from the University of Wisconsin-Madison and his B.S. in Metallurgical Engineering in 1975 from Michigan Technological University. From 1982 to 1987, he was Staff Metallurgist, Materials Science and Technology Division at the U.S. Naval Research Laboratory. After joining Ames Laboratory (USDOE) in 1987, Dr. Anderson currently is a Senior Metallurgist and Adjunct Professor of Materials Science and Engineering at Iowa State University. Dr. Anderson's research is focused on powder metallurgy and rapid solidification; high pressure gas atomization of fine metal powders; centrifugal atomization/fluid quenching of spherical powders of rare-earth metals/compounds and other alloys, as well as materials joining including lead-free solders, resistance welding, and ceramic composite bonding. He has over 280 publications and 49 patents.

Dr. Anderson is a member and Fellow (1994) of ASM International and has served as an ASM Trustee. He is also a member and Fellow (2015) of TMS and served as a member of the TMS Board of Directors. Dr. Anderson is a member and Fellow (2006) of the APMI and was a Board of Directors member. He is also a Fellow of Alpha Sigma Mu and National Academy of Inventors and a Member (2017) of the National Inventors Hall of Fame. In 2019, Dr. Anderson was named a Distinguished Alumni of Michigan Technological University. He also received other awards including the 2001 Energy 100 Award; 1996 TMS Distinguished Service Award; 1991 R&D-100 Award; and the 1991 Federal Laboratory Consortium Award for Excellence in Technology Transfer.

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Dr. Andrew Heidloff is the Technical Director of Powders for Praxair Surface Technologies based in Indianapolis, IN. His responsibilities include managing introduction of new products and processes for thermal spray and additive manufacturing powders. He also oversees technical improvements for cost savings measures across metallic, ceramic, and carbide materials. He received his PhD from Iowa State University with a background in physical metallurgy of Ni-base superalloys and titanium atomization.



Dr. Marius Stan is a Senior Scientist and Leader of Intelligent Materials Design in the Applied Materials Division at Argonne National Laboratory. He is also a Senior Fellow at University of Chicago and Northwestern University. Marius and his group use artificial intelligence (AI) and high-performance, multi-scale computer simulations to understand and predict physical and chemical properties of multi-component metals and ceramics. The applications include energy production (nuclear fuels and reactor materials), energy storage (batteries) and electronics. The group also uses AI to optimize complex processes for manufacturing applications such as 3-D printing and flame spray pyrolysis. Marius has extensively published in the scientific literature, holds several patents, and is currently writing a book on modeling and simulation.

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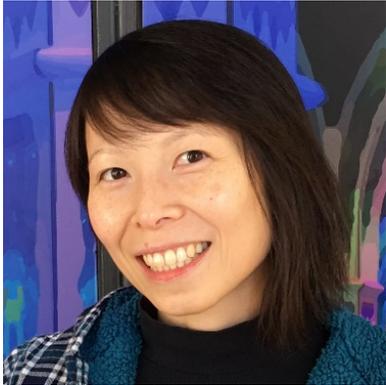
Dr. Jeremy Iten is the Chief Technology Officer at Elementum 3D and co-inventor of reactive additive manufacturing (RAM) technology. He and his team at Elementum 3D have commercially introduced over a dozen new materials and processes for additive manufacturing including a family of high-performance aluminum materials. Jeremy has over 20 years' experience in materials research and development with several patents and publications in the areas of reaction synthesis and additive manufacturing. He earned a Ph.D. in materials science and M.Eng. in metallurgical and materials engineering from the Colorado School of Mines.

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Brenda Ng, Ph.D. is the Machine Learning Group Leader in the Computational Engineering Division of Lawrence Livermore National Laboratory. All her projects to date are tied to a single theme: how do we exploit our knowledge and sensing capabilities to take optimal actions in a world plagued with uncertainty. Her research interests include machine learning, uncertainty quantification, and decision-making under uncertainty. Currently, she leads machine learning projects that apply deep learning methods to enable multimodal data fusion for energy grid health prediction, surrogate development for complex physics-based carbon capture models, and interpretable natural language processing for document classification. Brenda received her Ph.D. in computer science from Harvard with specialization in artificial intelligence.

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Victor Castillo is a senior scientist and former group leader in the Computational Engineering Division at Lawrence Livermore National Laboratory with a background in Computational Physics, Machine Learning, and System Dynamics and over 30 years of experience in industry and government research. He is passionate about using computers – from low-power embedded systems to world-class supercomputers – to solve problems. Vic received a Ph.D. in Engineering, Applied Science from University of California at Davis. His current work at LLNL includes simulation modeling and analysis, development of fluid dynamics applications, and enterprise modeling. Vic was also honored with the national 2013 Community Service award from Great Minds in STEM.

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