Outside Witness Testimony from the Society for Industrial and Applied Mathematics (SIAM)

Submitted by Dr. Alejandro Aceves, Vice President for Science Policy, SIAM; Dr. Suzanne L. Weekes, Chief Executive Officer, SIAM

Submitted to Subcommittee on Energy and Water Development, Committee on Appropriations, United States Senate

Regarding the Department of Energy

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Summary: This written testimony is submitted on behalf of the Society for Industrial and Applied Mathematics (SIAM) to ask you to continue your support of the Department of Energy (DOE) Office of Science with funding of $9.5 billion in fiscal year (FY) 2026. In particular, we urge you to provide $418.5 million for Mathematical, Computational, and Computer Sciences Research in the Advanced Scientific Computing Research (ASCR) program within the Office of Science. We also emphasize the importance of support for graduate students through the Computational Sciences Graduate Fellowship and request that $20 million be provided in FY 2026. It is critical that we renew prioritization of research investments in FY 2026 and protect research from further cuts. SIAM opposes the devastating cuts proposed in the budget request, which could lead to a massive rollback in our competitiveness, innovation, and future STEM workforce.

Written Testimony: On behalf of SIAM, we submit this written testimony for the record to the Subcommittee on Energy and Water Development of the U.S. Senate Committee on Appropriations.

SIAM has approximately 14,000 members, including applied and computational mathematicians, computer scientists, numerical analysts, engineers, statisticians, and mathematics educators. They work in industrial and service organizations, universities, colleges, and government agencies and laboratories all over the world. In addition, SIAM has over 500 institutional members—colleges, universities, corporations, and research organizations. SIAM members come from many different disciplines but have a common interest in applying mathematics in partnership with computational science towards solving real-world problems.

SIAM appreciates the Committee's leadership on and recognition of the critical role of the Department of Energy (DOE) Office of Science and its support for mathematics, science, and engineering in enabling a strong U.S. economy, workforce, and society. We understand the difficult fiscal environment that we all face. However, we are deeply concerned about the potential for significant cuts to DOE's Office of Science in FY 2026, including, but not limited to, research supporting mathematics and computational sciences, which will harm critical research, infrastructure, and workforce investments, and damage our research ecosystem. Maintaining leadership in many DOE mission areas, such as fusion and geothermal energy, requires advancing state-of-the-art scientific computing research.

SIAM is grateful for the strong funding that the Office of Science received in FY 2025 through the continuing resolution, and we join with the research community to request that you continue this momentum by providing the Office of Science with $9.5 billion for FY 2026. The requested amount is necessary for ensuring continued support for areas such as mathematics and scientific research to help address national priorities, foster economic growth, and create jobs.

Advanced Scientific Computing Research-- Activities within the Advanced Scientific Computing Research (ASCR) program play a key role in supporting research that begins to fulfill the needs described above. **Within the overall amount for the Office of Science, SIAM requests that the Committee reject the cuts called for in the President's Budget Request and provide $418.5 million for Mathematical, Computational, and Computer Science Research within the Office of Advanced Scientific Computing Research (ASCR), $128 million above the FY 2025 enacted level.** This level of funding would enable ASCR to transition funding from the Exascale Computing Project (ECP) that is now complete back into marquee foundational research programs. These programs have been heavily underfunded during the years of ECP, and the increased funding will enable DOE to address challenges in next generation computing systems, develop and utilize Artificial Intelligence/ Machine Learning technologies in simulations and data intensive applications, and make progress on other basic research priorities, such as maintaining U.S. leadership in computational science. Basic research in applied mathematics and computational science is needed to ensure the long-term health and viability of the high-performance computing (HPC) ecosystem that the Department of Energy (DOE) relies on for conducting groundbreaking discovery science while supporting increased investment in priority areas such as quantum computing and artificial intelligence.

Core research activities within ASCR enable the development of critical tools for computational science, modeling, and data analysis that enhance advanced computing capabilities and seed new areas of research with potential for revolutionary advancements. Sustained investment in basic research ultimately enabled the global leadership in HPC that the U.S. currently enjoys. While our strength in HPC is exemplified by the groundbreaking deployment of the exascale systems and the many science applications running on them, this position is increasingly being challenged by China and other countries. Now is the time to increase investment if we want to maintain our competitive edge globally, not cut scientific funding.

Computational science has long been an essential part of DOE's scientific enterprise, but the near future will be unusually ripe with opportunities. With the deployment of the Exascale computing systems, ASCR is uniquely positioned to support a broad array of research and initiatives from other programs in the Office of Science and all of DOE. However, without continuous investment, computational science applications may struggle to adapt to the exascale computing environment and fail to maximize its potential.[1] While the Exascale computers are currently the strongest in the world—an accomplishment many years in the making—it is in ASCR's mission to continue to drive U.S. technological leadership and the future of supercomputing, and to always be looking towards what comes next. To accomplish this effectively, ASCR needs to clearly layout its vision for the future of advanced computing.

[1] SIAM Task Force Report. 2024. The Future of Computational Science. https://www.siam.org/media/cfufuosh/siam-report-on-the-future-of-computational-science.pdf

Supporting the Pipeline of Mathematicians and Scientists-- SIAM is grateful for Congress's strong support of the Computational Sciences Graduate Fellowships (CSGF) in FY 2025, and **requests that $20 million be provided for the Computational Science Graduate Fellowship (CSGF) in FY 2026 within the overall amount for research.** Researchers trained in computational science and working in universities, national laboratories, and industry are essential to propel advances in many critical DOE research areas. This program is critical to ensure the existence of an adequate supply of scientists and engineers with strong computational research experience and close ongoing ties to DOE to meet future national workforce needs.

The CSGF increase reflects the growing need for an expanded workforce in emerging areas of importance to DOE such as artificial intelligence and data science. As international competition in science and engineering intensifies—including stepped up efforts to recruit U.S.-based talent to continue their research abroad—maintaining U.S. leadership in these areas will increasingly depend on our ability to cultivate a scientific workforce with strong research experience and close ties to DOE. An increase in funding to CSGF would also enable ASCR to address a consistent oversubscription in the program.

Conclusion-- The programs in the Office of Science, particularly those discussed above, are important elements of DOE's efforts to fulfill its mission. They contribute to the goals of American energy dominance and facilitate DOE's effort to increase U.S. competitiveness by training and attracting the best scientific talent into DOE headquarters and laboratories, the American research enterprise, and the U.S. energy economy.

Thank you again for your ongoing support of the DOE Office of Science. The DOE Office of Science needs sustained annual funding to maintain our competitive edge in science and technology, and therefore we respectfully ask that you continue your support of these critical programs and reject the Administration's budget cuts. We appreciate the opportunity to provide testimony to the Committee on behalf of SIAM and look forward to providing any additional information or assistance you may ask of us during the FY 2026 appropriations process.