

RFA-18-15829, Accelerate Development of Industry-Relevant Features in Modern Simulation Tools

The advanced reactor industry needs usable, modern simulation tools to develop their technologies and bring new reactors to market. Modern tools can run easily on multiple architectures and can be easily updated and extended to new reactor designs or configurations. Many of the legacy tools available to reactor developers today fail on both of these measures. They provide valuable capabilities, but they were not built to the standards required today. New simulation tools currently under development are substantially improving this situation, but important gaps remain.

Oklo, Inc. will partner with Argonne National Laboratory to further develop OpenMC and add capabilities of particular relevance to the advanced reactor industry. This project will commit additional resources to the code, so that the team can address industry priorities without disruption to their current work. Specifically, the voucher will provide resources targeted at the need for more powerful visualization capabilities, as well as facilitate additional coupling features needed to make those capabilities more extensible between OpenMC and BISON, the fuel performance code built on the MOOSE open-source multiphysics framework. Oklo, Inc. will also partner with Idaho National Laboratory to further develop thermal hydraulic tools built upon the MOOSE Multiphysics framework that readily couple with BISON.

This project will accelerate the development of industry-relevant features in these tools, and accelerate the technology development timeline for Oklo, Inc. and other reactor developers.