The Combinatorial Scientific Computing and Petascale Simulations (CSCAPES) Institute

The CSCAPES Institute has been established with funding from the Office of Science of the U.S. Department of Energy in their Scientific Discovery through Advanced Computing (SciDAC) program. The mission of the Institute is to address the challenges of harnessing petascale performance for scientific simulations involving complex models and sophisticated algorithms. The application areas include astrophysics, plasma fusion, accelerator design, systems biology, climate modeling, etc. The CSCAPES Institute focuses on three major areas of research: parallelization toolkits and load balancing, automatic differentiation, and large-scale graph and matrix computations. Education of graduate students and post-doctoral students, training researchers in the methods and tools of CSC, and outreach to the broader scientific community, form an integral component of the CSCAPES project. Members of the CSC community who wish to work with us in advancing the algorithmic and software tools in CSC and furthering their dissemination are invited to partner with us.