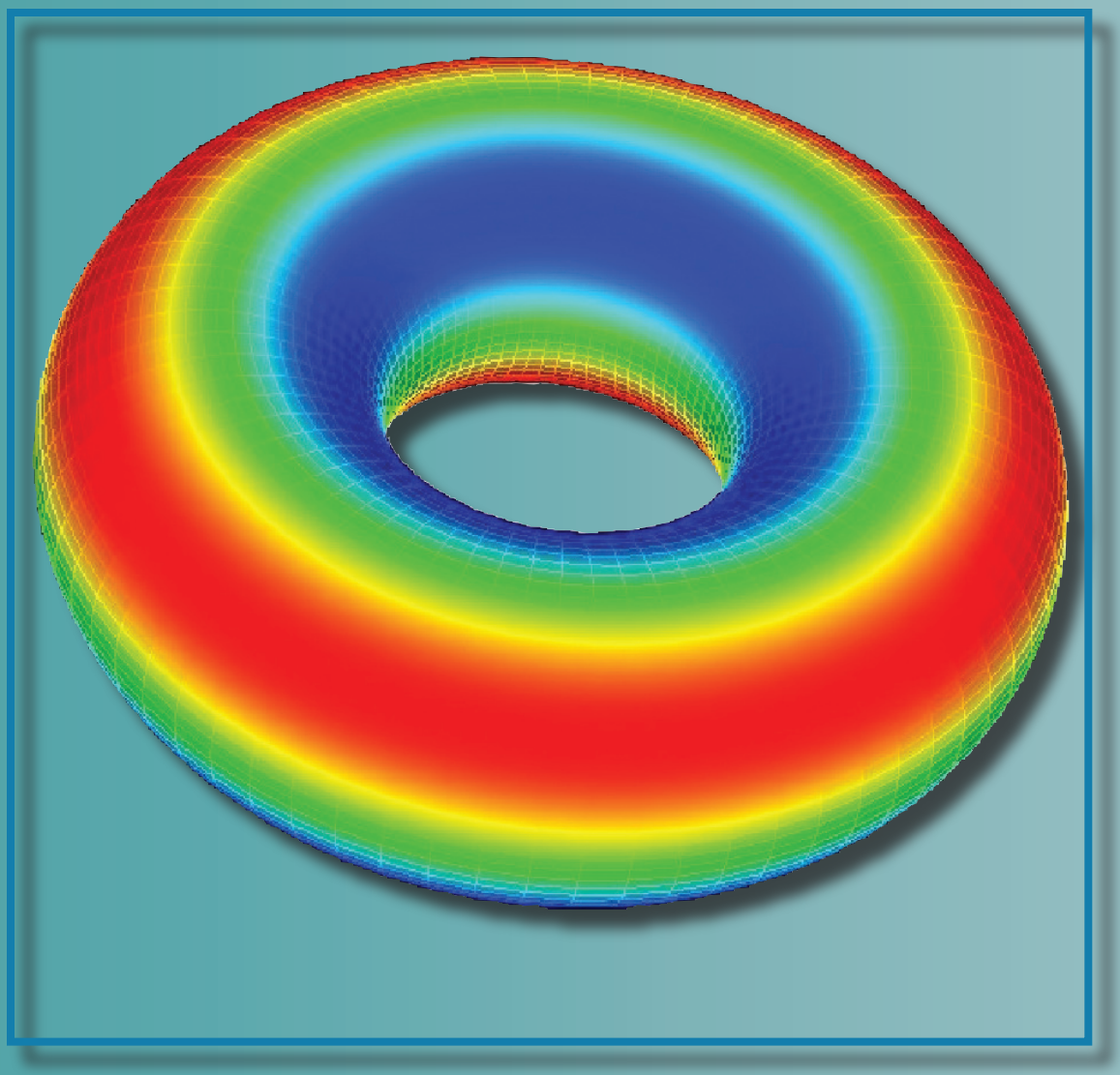

Production Desktop, Supercomputing, and Support

The high-performance computing environment at Los Alamos National Laboratory (LANL) extends from the end-user's office computer to the supercomputer and storage systems to large-scale visualization facilities. These environments are complemented by software tools sets, application and input/output (I/O) libraries, and high-performance networks that are developed and supported by computer scientists, engineers, and technicians from the High-Performance Computing (HPC) and Computing, Telecommunications, and Networking (CTN) divisions. The intent is to provide an intuitive electronic workplace that enables simulation scientists to get the most out of the national assets in the three primary LANL computer centers: yellow (unclassified-protected), turquoise (unclassified-collaboration), and red (classified).

Adding to the complexity and challenge of these environments is the need for manipulating the huge data sets that are required to represent complex physical phenomena. This drives the need for advanced computer architectures, higher and higher speed networks, and a growing inventory of software support tools to mask the complexity of the computer environment from the end user.

The articles in this section focus on the "desktop to teraflops" supercomputing environment that is the primary modern simulation and modeling tool that scientists need and use to develop a first-principles understanding of the world and universe that we all share.