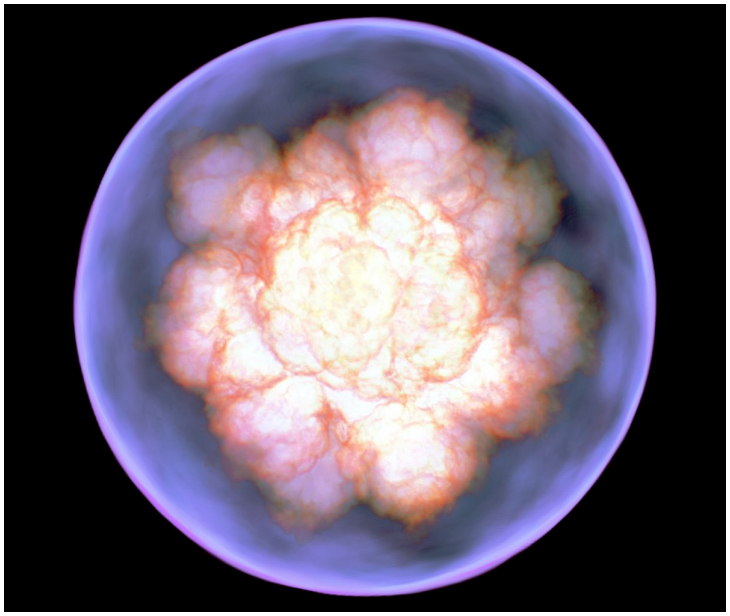
For the Week of September 21st,2009

ORNL Supercomputers Help Studies of Supernovas, Space

Researchers use Jaguar to simulate ignition in Type Ia Supernova explosions

- Thanks to simulations on Jaguar, scientists have determined that Type Ia supernovas can explode asymmetrically, possibly affecting their brightness.
- By studying first principles of how a supernova explodes, the team aims to refine distance calculations, strengthening the use of Type Ia supernovas as proof of the expansion of space.
- For the past 3 years, the OLCF has provided Woosley's team with a machine powerful enough to study the minuscule to stellar scales within such a supernova.
- The team's accomplishments were published in the August 13, 2009, edition of *Nature.*



Visualization of the flame front burning through a white dwarf star in a full three-dimensional explosion simulation. Credit: Fritz Roepke, MPA

"What we are trying to do specifically with this research is follow the evolution of the white dwarf from the first burning to supernova." – Principal investigator Stan Woosley

Oak Ridge Specialists Attend HPC User Forum, Share Expertise

ORNL specialists share their knowledge on the role of high-performance computing in climate change

- Scientific computing specialists from ORNL traveled to Broomsfield, Colorado, to share their expertise at the High-Performance Computing User Forum, September 8- 10.
- The application theme of the forum was climate, weather and, Earth sciences. The OLCF's Jim Hack, Doug Kothe, Galen Shipman, and Trey White all attended.
- Hack gave the first presentation of the forum on the roll of HPC in understanding and positively reacting to global climate change.

"It's a user-oriented forum that provides a venue within which to have quarterly discussions about the state and future of the field of high-performance computing."

- Doug Kothe, director of science at the OLCF and member of the HPC User Forum steering committee

ORAU Seeks Proposals for High-Performance Computing Grants

ORNL makes Jaguar available to university researchers

- Oak Ridge Associated Universities (ORAU) has announced a call for proposals for a series of HPC grants that would allow faculty and student research teams to participate in research with the benefit of ORNL computing resources and staff.
- The competitive grant program, open to ORAU's 97 member institutions, provides potential funding of up to $75,000 for three years, allowing participant teams the opportunity to take full advantage of ORNL's computing resources.
- The program presents an opportunity for university research to expand their existing research initiatives and demonstrate alignment with ORNL's cross-cutting science agenda as it relates to computing and computational sciences.

ORNL is making its powerful Jaguar supercomputer available to university researchers through Oak Ridge Associated Universities. ORNL's Jeff Nichols says his computational science group will work closely with the university researchers once they are chosen.

"ORAU is an integrator of knowledge and capabilities across a broad range of research institutions in their consortium."

- ORNL associate laboratory director for computing and computational sciences, Jeff Nichols