

NATURE AND SCOPE OF JOB

The Computational Geosciences Group in the Atmospheric Earth and Energy Division (AEED) at Lawrence Livermore National Laboratory has an immediate opening for a postdoctoral scientist to do original and independent research in one or more aspects of computational geophysics, geology, and basic energy sciences. The successful candidate will perform computational modeling and field studies utilizing state of the art geomechanical tools to study fault and fracture network activation in response to fluid injection into the subsurface. The successful candidate will have access to LLNL's extensive computer facilities, specialized laboratory facilities and field equipment. The postdoctoral scientist will report to the Computational Geosciences Group Leader within AEED.

ESSENTIAL DUTIES

- Conduct original and independent research in computational geophysics, geology, and basic energy sciences. Organize and analyze data from research.
- Understand the essential physics interactions that take place when geophysical materials are subjected to loading.
- Perform code development, large scale simulations, analyze results and compare to laboratory and field data.
- Publish both programmatic reports and peer-reviewed publications summarizing research findings. Present results at program meetings and national conferences.
- Work as part of a scientific team and interact with physicists, geologists, seismologists, and chemists to design and implement research projects.

ESSENTIAL SKILLS, KNOWLEDGE AND ABILITIES

- Recent Ph.D. in physics, geology, geophysics, basic energy sciences, or associated engineering fields.
- Demonstrated creativity to develop and implement computational strategies, with exceptional ability and knowledge in the applicant's area of specialization.
- Knowledge of the development of three-dimensional continuum or discrete element codes.
- Very good knowledge of modern computer systems, computational tools, languages and hardware configurations.
- Ability to work effectively both individually and in a team-oriented environment.
- Experience writing and presenting reports, publications, and proposals.
- Effective verbal and written communication skills.

DESIRED SKILLS, KNOWLEDGE AND ABILITIES

- Significant experience with finite element methods and related numerical schemes.
- Significant experience with C/C++ and standard development tools.
- Basic familiarity with MPI and parallel programming paradigms.
- Understanding of coupled physical processes common in subsurface applications (solid deformation, fluid flow, thermal effects, etc.) and strategies to model these interactions.