Earth and Environmental Sciences Division

Job Title: **Computational Earth Scientist**
Subsurface Flow and Transport Modeling (Scientist 3/4)
Location: **Los Alamos, NM, US**
Organization Name: **EES-16/Computational Earth Science**
Job ID: **IRC18152**

Department Description:
Located in northern New Mexico, Los Alamos National Laboratory (LANL) is a multidisciplinary research institution engaged in strategic science on behalf of national security. LANL enhances national security by ensuring the safety and reliability of the U.S. nuclear stockpile, developing technologies to reduce threats from weapons of mass destruction, and solving problems related to energy, environment, infrastructure, health, and global security concerns.

The mission of the Earth and Environmental Sciences (EES) Division of Los Alamos National Laboratory is to solve complex problems of importance in environment, energy, and national security by using our capabilities in earth and environmental sciences. The division is a highly interactive, well-funded research organization with an annual budget of approximately $100 million and a staff of approximately 240. The core disciplines of EES Division include Geology, Geochemistry, Geophysics, Geomaterials, Geography, Hydrology, Atmospheric Science, Ecology, Environmental Science, Computational Science and Geotechnical Engineering. The disciplines are organized into groups within the division, which consist of 30-40 Scientists, with approximately 20 support staff, post-docs, and students. Each group has a variety of scientific programs, on the order of $20-$25M in direct funding. The members of each group are organized into 3 or 4 teams, led by team leaders who support the Group Leader directly.

This job posting is for the Computational Earth Science Group (EES-16). EES-16 performs research and develops capabilities for computing solutions to address challenges in clean energy development, environmental management, nuclear waste disposal, resource allocation and impacts, climate impacts, wildfire and urban firestorms, and atmospheric weapons phenomenology. The Group is characterized by a balance of basic and applied research, which leads to the development of novel and integrated capabilities that are then utilized to address practical problems for sponsors in multiple offices in DOE, other federal agencies, and a variety of industries.

EES-16 is looking for a creative, experienced professional scientist to join our interdisciplinary team to take a leadership role in design and application of numerical models characterizing three-dimensional subsurface coupled thermo-hydro-mechanical-chemical processes. The successful candidate will conduct innovative research and site-specific investigations and will develop and lead projects supported by teams of scientists and staff. He/she will interact regularly with sponsors to understand their goals and will author programmatic reports that address problems of

national importance. The candidate is expected to publish in peer-reviewed journals and present at national conferences. The successful candidate will join the dynamic and interdisciplinary Subsurface Flow and Transport team, which includes more than 20 researchers working on projects related to analysis and simulation of multi-phase / multi-component flow, geomechanics and reactive transport. Ongoing research and application areas include hydrology, unconventional fossil fuel recovery, geologic carbon sequestration, geothermal energy, other innovative energy solutions and more generally fluid-solid interactions at the pore, core and reservoir scale. Many of our projects address the nation's most challenging subsurface systems with multi-scale/multi-phase physics, fractured-rock flow and transport, and geochemical interactions. High-performance computing is a foundation of our team's simulation science; our team interfaces with other teams that focus on observation and experimentation.

Detailed Description:

This position will be filled at either the Scientist 3 or 4 level, depending on the skills of the selected candidate. Additional job responsibilities (outlined below) will be assigned if the candidate is hired at the higher level.

Scientist 3   ($83,100 - $142,500)
The duties for the Scientist 3 include:

- Contribute towards the formation of new cutting-edge proposals.
- Leading and contributing to peer-reviewed publications.
- Work with group members, sponsors and program/project managers to ensure EES-16 work is done on time within budget, and has high technical quality.
- Mentor postdocs and students.
- Participate in new program opportunities as directed.
- Some travel may be required.

Scientist 4   ($101,400 - $171,000)
The duties for the Scientist 4 include:

- Responsible for all job functions of a Scientist 3
- Will provide technical direction to multiple teams for Laboratory-wide initiatives and/or new technology product line strategies.
- Perform as the principle investigator of projects.
- Serving as an authority in technical decision-making and direction at an institutional level.

Job Requirements:

Minimum Job Requirements:

- An extensive background in one or more of the following areas: computational hydrology, reservoir simulation, computational fluid dynamics or reactive transport.
- A demonstrated record of directing and completing theoretical and/or site-specific

subsurface hydrology or reservoir investigations.

- A demonstrated record for writing successful proposals, acquire internal/external funding for self and others and leading interdisciplinary teams of scientists and technicians and/or students.
- Strong oral and written communications skills, including a demonstrated record of peer-reviewed publications.
- Experience in one or more of the following: Development of novel theoretical methods and computational algorithms/software/techniques related to simulation of coupled thermo-hydro-mechanical-chemical processes; Quantitative estimation of uncertainty in model parameters and predictions; Fluency in one or more programming and/or scripting languages; High-performance computing.
- Demonstrated ability to develop innovative advanced concepts, theories, methods, techniques and approaches to address specialized problems.
- Influence industry standards and procedures and guide their application to projects and programs.
- Identify, develop and promote new technical capabilities within current organization.
- Demonstrated ability to serve as the primary author of technical products such as journal papers, reports, presentations, and concept papers intended for national audiences.
- Demonstrated ability to develop intellectual property leading to publications, copyrights, technology transfer, and/or patents.

Additional Job Requirements for Scientist 4:
In addition to the Job Requirements outlined above, qualification at the Scientist 4 level requires:

- The ability to have upward influence on large project strategies and directions as demonstrated by leading technical decision-making at major project level and making decisions and/or recommendations that guide the future directions and successful completion of major programs.
- Demonstrated ability to develop and implement project management plans for moderate to large high-risk projects.
- Experience leading the development of scope, schedule, and budget and defining deliverables at project or program level.
- Prior experience managing moderate to large, complex and/or high-risk projects, involving multiple tasks, capabilities, and organizations.
- Demonstrated record of active participation in professional societies, complex interactions, special assignments, and/or external collaborations. Organize internal/external working groups, meetings, and colloquia.

Desired Skills:

- Experience in the energy sector and petroleum industry.
- Experience in DOE Environmental Management projects from across the DOE complex.
- Experience in energy or environmental projects nationally and internationally.

Education:
Typical educational requirement is an advanced degree in science from an accredited college or university. Ph.D. preferred, M.S with extensive experience acceptable, in Hydrogeology, Geosciences, Computational Sciences, or Engineering and at least 5 years professional experience with strong component of leadership.

Notes to Applicants:
LANL offers an excellent working environment and competitive compensation and benefits package. For further information, see http://www.lanl.gov/careers; job IRC18152. EES Division employs over 200 people, including many postdoctoral associates and graduate students, with expertise in various facets of earth science. EES fosters a family-friendly working environment. Additional information about this position and the Subsurface Flow and Transport team can be obtained by contacting Carl Gable (gable@lanl.gov, (505) 665-3533).

Additional Details:

Clearance: Q (Position will be cleared to this level). Applicants selected will be subject to a Federal background investigation and must meet eligibility requirements* for access to classified matter.

*Eligibility requirements: To obtain a clearance, an individual must be at least 18 years of age; U.S. citizenship is required except in very limited circumstances. See DOE Order 472.2 for additional information

Pre-Employment Drug Test: The Laboratory requires successful applicants to complete a pre-employment drug test and maintains a substance abuse policy that includes random drug testing.

Regular position: Term status Laboratory employees applying for regular-status positions are converted to a regular status only with approval of the cognizant Principal Associate Director.

Equal Opportunity: Los Alamos National Laboratory is an equal opportunity employer and supports a diverse and inclusive workforce. We welcome and encourage applications from the broadest possible range of qualified candidates. The Laboratory is also committed to making our workplace accessible to individuals with disabilities and will provide reasonable accommodations, upon request, for individuals to participate in the application and hiring process. To request such an accommodation, please send an email to applyhelp@lanl.gov or call 1-505-665-5627.