Design Physics Division November 9, 2019
Job ID: 106068
Weapons and Complex Integration Directorate
Lawrence Livermore National Laboratory

Dear Team Hiring Manager,

As a motivated physicist, I am interested in joining your team to advance our understanding and develop methodologies for important national-security challenges associated with the complex processes of nuclear explosives. I would like to apply for position Job ID: 106068.

I am currently a post-doctoral scholar at the University of California, Berkeley with expertise in particle transport simulations working in particle/nuclear physics.

With regard to my ability to meet the specific requirements of this job:

- **Education:** PhD in experimental particle physics (2016) with emphasis on particle/radiation transport simulations and algorithm development for novel particle detection technologies.
- **Demonstrated record of research:** Developed unprecedented algorithm for directional particle detection in scintillator using center of charge and time technique. Implemented novel 3-D topological event reconstruction algorithms in scintillators.
- **Experience with computer-based design/analysis:** 8 years of experience working with GEANT4 modeling particle/radiation transport, nuclear decays, photon propagation, and their effects on hardware. Over 8 years of experience analyzing large-scale simulated/experimental data using statistical analysis tools in ROOT/RooFit/C++/Python. Typical work involves uncertainty analysis, trade studies, sensitivity studies.
- **Demonstrated aptitude for mastering new fields of physics:** Post-doctoral experience involves using multi-physics simulation tools ComSol/SolidWorks to investigate temperature dependent structural integrity trade studies.
- **Experience in using advanced computational facilities:** Typical work experience involves simulation/analysis work on high-performance clusters at NERSC (Lawrence Berkeley National Laboratory), LNGS (Grans Sasso National Laboratory), Tohoku University, as well as local multi-node clusters of more than 50 nodes.
- **Verbal and written communication/presentation skills:** Contributed work published in various journals. Talks given at institutions such as Sanford Underground Research Facility, Fermilab, Argonne National Laboratory.
- **Work effectively independently and in a team:** Worked in 3 multinational collaborations in Japan, Italy, and US. Original work successfully interfaced with larger collaboration. Mentored PhD-level students in weekly GEANT4 tutorials and increased productivity by organizing group initiatives.
- **Ability to obtain secret clearance:** US citizen.

I would appreciate an opportunity to meet and discuss my application at an interview. I have also sent my resume and other relevant documents for your consideration. Please feel free to let me know if you have any questions.

Thank you for your time,

Michinari Sakai

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