Rare Event Detection group December 28, 2019
Nuclear and Chemical Sciences Division
Lawrence Livermore National Laboratory

Dear Team Hiring Manager,

As a motivated physicist, I am interested in joining your team on the PROSPECT short-baseline reactor antineutrino experiment as well as to work on developing new detector technologies in reactor monitoring and neutrino physics. I would like to apply for the advertised post-doctoral researcher position.

I am currently a post-doctoral researcher at the University of California, Berkeley with expertise in large-scale data analysis and computational physics simulations working in the field of particle/nuclear physics.

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

- **Education:** PhD in experimental neutrino physics (2016) with emphasis on directional neutrino detection, Geant4 particle/radiation transport simulations, and algorithm development for novel particle detection technologies.
- **Experience in neutrino physics and scintillation detector design:** Graduate work involved developing/applying neutrino detection algorithms in the scintillator neutrino detector KamLAND, as well as designing and building a portable local detector for testing the light yield of LAB based scintillators in strong electric fields. Other scintillator work includes testing its stability in extreme environments such as cold temperatures and high pressures.
- **Experience with Geant4 and optical tracking simulations:** Extensive experience designing Geant4 detector simulation code both from scratch as well as collaboratively within a team. Optical tracking simulation experience in scintillator detectors KamLAND, mini-TimeCube, as well as using VUV (vacuum ultraviolet) wavelength shifters.
- **Experience with the C++ programming language:** 8 years of extensive experience with C/C++/ROOT analyzing large physics data sets.
- **Proficient verbal/written communication skills:** Contributed work published in various journals. Talks given at institutions such as Los Alamos National Laboratory, Sanford Underground Research Facility (SURF), Argonne National Laboratory, DNP (Division of Nuclear Physics) conferences.
- **Ability to work independently on technical hardware and software tasks:** Currently leading local VUV photon wavelength shifting/detection hardware project at UC Berkeley, as well as supervising simulation/analysis of detector systematics and data.
- **Initiative and interpersonal skills to work in a collaborative team environment:** 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.

I would appreciate an opportunity to meet and discuss my application at an interview. I have also sent my resume 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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