Electronic Detector Group January 25, 2020
Brookhaven National Laboratory

Dear Team Hiring Manager,

As a motivated physicist, I am interested in joining the Electronic Detector Group (EDG) in the Physics Department at the Brookhaven National Laboratory (BNL). I would like to apply for the advertised position of Assistant Scientist.

I am currently a post-doctoral researcher at the University of California, Berkeley with experience in detector simulation, data analysis, and design for scintillator neutrino detectors and VUV optical wavelength shifters for LAr.

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 in scintillator, authoring Geant4 detector simulation, and algorithm development for novel event reconstruction technologies.
- **Experience in data analysis, detector simulation or detector development:** 8 years of experience with ROOT/C++/Python analyzing large physics data sets. Extensive experience designing Geant4 detector simulation code both from scratch as well as collaboratively within a team to conduct case studies for detector design.
- **Ability to work independently and as part of a group:** Worked in 3 multinational collaborations in Japan, Italy, and US. Original work successfully interfaced with larger collaboration. Currently leading local VUV wavelength shifter research team of 3 people. At UCLA, mentored PhD-level students in weekly Geant4 tutorials and increased productivity by organizing group initiatives.
- **Proficiency with common high energy physics analysis tools:** Extensive experience with ROOT/PyROOT, Geant4, Latex, Latex-beamer. Some experience with R.
- **Excellent written and oral 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.
- **Post-doctoral experience:** 3 1/2 years of post-doctoral experience.
- **Experience with particle physics detectors, detector simulation, event reconstruction and analysis of the data:** Past experience analyzing data, simulating Geant4 detector model for KamLAND scintillator neutrino detector, mini-TimeCube portable scintillator neutrino/neutron detector, CUORE neutrinoless double beta decay experiment, and VUV wavelength shifter apparatus. Developed novel directional neutrino event reconstruction algorithm and tested 3-D event imaging technology in scintillator. Designed and built apparatus for LAB based scintillator stability under strong electric fields of $\sim 1\,\mathrm{kV/cm}$.

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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