

Prof. Kate Scholberg
HEP Neutrino Group
Duke University
Durham, North Carolina 27708, United States

April 23, 2018

Dear Prof. Kate Scholberg,

As a budding and ambitious physicist, I am extremely interested in the Postdoctoral Researcher position in your HEP neutrino group working with COHERENT, DUNE, Super-Kamiokande, and T2K. I would like to apply for the position.

My experience involves developing never before explored novel ideas for neutrino detection in scintillator as well as event track reconstruction and particle ID techniques. Through my work, I single handedly opened the doors to a never before explored capability of scintillator detectors to conduct indirect dark matter searches by looking for directional neutrino signals from the core of the Sun and Earth. A paper for this is currently under preparation.

With regard to qualifications for this particular job:

- **Recent PhD in relevant field:** Received PhD in experimental neutrino physics from University of Hawaii in May, 2016.
- **Experience in the design, assembly, and running of particle physics detection experiments:** Led Geant4 detector design trade studies for miniTimeCube portable neutrino detector. Experience using AutoCAD to machine and assemble apparatus for light yield measurements of scintillator. Experience working in data taking phase of two major experiments: KamLAND, CUORE.
- **Knowledgeable in neutron and gamma-ray detection/spectroscopy.:** miniTimeCube simulation studies also involved detector in neutron detection mode and modeling of multi-channel plate (MCP) photomultiplier tubes (PMTs) employed in the detector.
- **Experience with data analysis and interpretation:** 8 years of experience with ROOT analyzing large physics data sets. 4 years of experience with python for data manipulation.
- **Proficient written, verbal, and organizational skills to effectively collaborate with widespread, international colleagues:** 17 publications, 14 talks working with collaborators in experiments in Japan, Italy, and US. Work includes mentoring students and organizing international collaboration meetings for host institute.
- **Ability to collaborate effectively in a team environment:** 8 years of experience working in international collaborations.

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

Thank you for your time and consideration,

Michinari Sakai

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