Michinari Sakai

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Summary

- Experience with nuclear decay and cosmogenic radiation in 3 multinational particle/nuclear physics experiments.
- Strong attention to detail in current work as well as ability to learn new skills.
- Expertise in Geant4 particle transport simulations with 8 years of experience.

Experience

UC Berkeley — Post-doctoral Researcher June 2018 — *Current*

- Modeling and calibration of ^{238}U/^{232}Th decay radiation induced energy depositions in detector materials.
- Supervisor for Geant4 modeling of photon interactions with optical wavelength shifters and detector materials.
- Lead researcher for characterization of micro-physical optical properties of optical wavelength shifter thin films.

UCLA — Post-doctoral Researcher 2016 — 2018

- Lead developer of precision α decay spectrum model to improve characterization of $\alpha/\beta/\gamma$ backgrounds in $0\nu\beta\beta$ decay searches.
- Mentor for 2 PhD students to simulate radiation shielding structures in Geant4 to mitigate γ/β backgrounds for next generation $0\nu\beta\beta$ searches requiring ultra-low radiation backgrounds.

University of Hawaii at Manoa — Research Assistant 2009 — 2016

- Spearheaded development of a novel directional neutrino detection technology in scintillator and demonstrated with data for the first time that this can be applied to conduct indirect dark matter searches in scintillator. First ever physics application of neutrino directionality in scintillator. Paper in preparation.
- Lead developer of Geant4 detector simulation to conducted case studies of neutron capture doping agents in solid scintillator. Simulation results were later used to oversee detector design and construction.

Skills

Software/Tools:	ROOT/RooFit, Geant4, SolidWorks, AutoCAD, COMSOL
Programming Languages:	Python, C/C++, Mathematica, Fortran, SolidWorks, AutoCAD, BASH.
Human Languages:	English (native), Japanese/Korean (trilingual proficiency)

Leadership and Communication

Mentor — *UC Berkeley, UCLA* March 2016 — *Current*

- Advised 2 students with Geant4 based optical simulation for current hardware project. Students are now undertaking independent research tasks and contribution original work.
- Taught weekly Geant4 tutorials to 3 PhD-level students for a semester. Students successfully learned to take on independent radiation modeling projects.

Teaching Assistant — *University of Hawaii at Manoa* 2007 — 2009

- Planned coursework and taught 2 weekly physics laboratory curriculum for classes of over 20 students each for 3 semesters. Received especially positive reviews for clarity of explanation of material, and teaching style.

Education

PhD, Experimental Particle Physics 2016

GPA: 3.97/4.00, University of Hawaii at Manoa

Dissertation: High Energy Neutrino Analysis at KamLAND and Application to Dark Matter Search

Double BS, Physics and Mathematics 2005

GPA: 4.33/4.50, Sun Moon University, S. Korea

President's Award 2005, Award for Outstanding Academic Achievement – Samsung Corp.