

Michinari Sakai

Email: michsakai@gmail.com • Phone: 808-206-4357 • Address: 1235 Solano Ave Apt 10, Albany, CA, 94706, USA

Summary

- Expertise in GEANT4 particle transport simulations with 8 years of experience.
- Experience with nuclear decay radiation, photon propagation in 3 major particle physics experiments.
- Innovative problem solving skills with the ability to interface original work with larger collaboration.

Experience

Post-doctoral Researcher, UC Berkeley June 2018 — *Present*

- Supervisor for GEANT4 modeling of photon interactions with wavelength shifters and detector materials.
- Lead researcher for characterization of micro-physical optical properties of wavelength shifter thin films.

Post-doctoral Researcher, UCLA 2016 — 2018

- 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 backgrounds.
- Lead developer of precision α decay spectrum model to improve characterization of backgrounds in $0\nu\beta\beta$ decay searches.

Research Assistant, University of Hawaii at Manoa 2009 — 2016

- 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.
- 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.

Skills

Software/Tools: GEANT4, ROOT, SolidWorks, AutoCAD, ComSol, Pads
Programming Languages: Proficient in C, C++, Python, Mathematica, Fortran, BASH
Human Languages: English (native), Japanese/Korean (trilingual proficiency)

Leadership

Mentor, UC Berkeley/UCLA March 2016 — *Present*

- 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 simulation 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.