Michinari Sakai

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Education

PhD, Experimental Particle/Neutrino Physics 2016
GPA: 4.0/4.0, University of Hawaii at Manoa
Dissertation: High Energy Neutrino Analysis at KamLAND and Application to Dark Matter Search

Graduate Program in Mathematics 2006
GPA: 4.5/4.5, Sun Moon University, S. Korea

Double BS, Physics and Mathematics 2005
GPA: 4.3/4.5, Sun Moon University, S. Korea
President's Award 2005, Award for Outstanding Academic Achievement – Samsung Corp.

Leadership and Research

KamLAND (Kamioka Liquid Scintillator Antineutrino Detector) 2009 - 2016
Research Assistant, University of Hawaii at Manoa

- Spearheaded development of novel directional neutrino detection technique in scintillator and demonstrated with data that this can be used to conduct dark matter searches in scintillator, first ever physics application of neutrino directionaly in scintillator
- Led unprecedented particle ID capability studies in scintillator using track profile reconstruction techniques using never before observed T2K events spilling into KamLAND
- Was solely responsible for high energy ($\gtrsim$1 GeV) energy calibration using cosmic ray muons and applying this to neutrino analysis for the first time

CUORE (Cryogenic Underground Observatory for Rare Events) Apr. 2016 - *Current*
Post-doctoral Scholar, University of California, Los Angeles (UCLA)

- Spearheading development of precision alpha background modeling in collaboration with a graduate student with goal for further background reduction to cover inverted neutrino mass hierarchy for $0\nu\beta\beta$ decay
- Mentored and worked with 2 undergraduate students for investigation of shielding structures to mitigate γ and beta backgrounds for next generation $0\nu\beta\beta$ decay searches requiring ultra-low background levels

Mini-TimeCube (Portable Neutrino Detector) 2009 - 2016
Research Assistant, University of Hawaii at Manoa

- Led development of Geant4 detector simulation and mentored 3 undergraduate students to contribute to the overall detector design
- Was responsible for background studies associated with long lived cosmogenic isotopes 8He/9Li, to quantitatively determine effect on detector live time

Teaching Experience

Mentor, *UCLA* 2016 - *Current*

- Taught weekly Geant4 simulation tutorials to 3 PhD students and 3 undergraduate students for 1 semester, students are now able to take on simulation tasks and collaborate in the group
- Led weekly Physics paper discussion groups for 3 PhD students, and promoted team work to increase dialogue and productivity within team

Teaching Assistant, *University of Hawaii at Manoa* 2007 - 2009

- Planned classwork and taught 2 weekly undergraduate Physics Laboratory classes of over 20 students each for 3 semesters, received "excellent" reviews
- Mentored undergraduate students in undergraduate Physics classwork for 2 hours each week for 3 semesters, got students repeatedly seeking my particular tutoring

Skills

Human Languages:	English (native), Japanese/Korean (trilingual proficiency)
Programming Languages:	Proficient in C, C++, Python, Fortran, Mathematica, Bash
Software/Tools:	ROOT, Geant4, Pads, AutoCAD