Yukiya Saito

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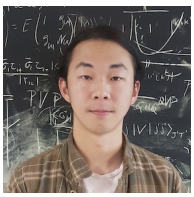

Education History

2018 – 2023 **Ph.D., The University of British Columbia, Canada,**
in Computational nuclear astrophysics.
Thesis: *Development of statistical tools for studies of the rapid neutron capture process*
Supervisors: Prof. Reiner Kruecken (Thesis advisor, UBC/TRIUMF/LBNL)
Dr. Iris Dillmann (co-supervisor, TRIUMF)
Dr. Matthew Mumpower (co-supervisor, LANL)

2016 – 2018 **M.Sc., The University of British Columbia, Canada,**
in Experimental nuclear physics.
Thesis: *Decay spectroscopy of neutron-rich ^{129}Cd with the GRIFFIN spectrometer*
Supervisors: Prof. Reiner Kruecken (Thesis advisor, UBC/TRIUMF)
Dr. Iris Dillmann (co-supervisor, TRIUMF)

2012 – 2016 **B.Sc., The University of Tokyo, Japan**, in Physics.

Research Position History

2023 – **NP3M Fellow**
Department of Physics & Astronomy
University of Tennessee, Knoxville, USA,
University of Notre Dame, USA, and
(2024 Fall –) Michigan State University, USA
Project: Development and application of statistical methods for r-process studies and microscopic nuclear theories.
Advisors: Prof. Rebecca Surman (Notre Dame)
Prof. Witold Nazarewicz (MSU/FRIB, 2024 Fall –)
Prof. Andrew W. Steiner (UTK, NP3M Director)

2023 – 2023 **Postdoctoral Research Fellow**
ALPHA Canada Group, TRIUMF, Canada
Project: Anti-hydrogen annihilation vertex position reconstruction for the ALPHA-g time projection chamber using deep learning.
Advisors: Dr. Makoto Fujiwara (TRIUMF)
Dr. Wojciech Fedorko (TRIUMF)

2016 – 2023 **Graduate Research Assistant**
Exotic Decay Spectroscopy Group, TRIUMF, Canada

2016 – 2016 **Research Assistant**
Radioactive Isotope Physics Laboratory,
RIKEN Nishina Center for Accelerator-Based Science, Japan

Teaching Position History

2016 – 2023 **Teaching Assistant,** Department of Physics and Astronomy,
The University of British Columbia, Canada

2018 – 2022 **Head TA Coordinator,**
Teaching Assistant Professional Development Committee,
Department of Physics and Astronomy,
The University of British Columbia, Canada

2017 – 2019 **Head Teaching Assistant,**
PHYS157 & 158 (Introductory Engineering Physics),
Department of Physics and Astronomy,
The University of British Columbia, Canada

Mentoring Experience

Undergraduate students

2023 **Ashley Ferreira** (UWaterloo/TRIUMF)

Topic: Anti-hydrogen annihilation vertex position reconstruction for the ALPHA-g time projection chamber using deep learning

Outcome: Student won the 1st place at the Canadian Astroparticle Summer Student Talk Competition

2021 **James Ross** (UBC)

Topic: Theoretical study of photon-beam-driven nuclear trans- mutation of long-lived radioactive waste

Outcome: Oral presentation by the student at the UBC Multidisciplinary Undergraduate Research Conference titled "Towards Photon-Beam-Driven Nuclear Trans- mutation of Long-Lived Radioactive Waste."

Paul Virally (UWaterloo/TRIUMF)

Topic: Implementation of an astrophysical nuclear reaction network calculation in the julia programming language

Outcome: Astrophysical nuclear reaction network calculation code NuclearReactionNetwork.jl (available upon request)

Honors and Awards

2023 – 2026 **Nuclear Physics from Multi-Messenger Mergers (NP3M) Fellowship**

The University of British Columbia/TRIUMF

2024	**2023-24 DNP PhD Thesis Prize**	C$1000
2016 – 2023	**International Tuition Award**	C$3200/year
2020 – 2022	**President's Academic Excellence Initiative PhD Award**	C$1000/year
2022	**IReNA Travel Support**	$1350
2018 – 2022	**Faculty of Science PhD Tuition Award**	~C$6000/year
2018	**WNPPC Student Travel Award**	C$500
2016 – 2018	**NSERC CREATE IsoSiM Stipend**	C$17,500/year

Honors and Awards (continued)

The University of Tokyo

2015 **Strategic Partnership between Princeton University and the University of Tokyo Scholarship,** for research exchange at the Department of Astrophysical Sciences, Princeton University ∼¥350,000

2014 **School of Science Visit Abroad Program Scholarship,** for attending Summer Session 2014 at UC Berkeley ∼¥350,000 + Tuition

2013 **Go Global 2013 S-Short Study Abroad Scholarship,** for attending a summer school at National Taiwan University ∼¥100,000

Skills

Scientific Computing — High performance computing • Nuclear reaction network calculation • Statistical sensitivity analysis • Bayesian modelling with probabilistic programming languages • Markov chain Monte Carlo methods • Uncertainty quantification • Machine Learning • Data analysis with ROOT

Programming Languages — Python • Julia • C++ • Shell script • LaTeX• Fortran (intermediate)

Human Languages — English and Japanese (Strong reading, writing and speaking competencies), Mandarin (Elementary).

Presentations

Invited

Jul 2024 **2024 BAND Collaboration Retreat**, Ohio University
"*Uncertainty quantification of nuclear mass models using ensemble Bayesian model averaging*"

Apr 2024 **INPP Seminar**, Ohio University

Feb 2024 **Notre Dame Nuclear Seminar**, University of Notre Dame

Jun 2020 **CAP Congress**, Canceled

Contributed

Oct 2024 **2024 APS DNP Fall Meeting**, Boston
"*Bayesian uncertainty quantification of nuclear mass models for astrophysical rapid neutron capture process*"

Jun 2024 **2024 CeNAM Frontiers in Nuclear Astrophysics Meeting**, University of Notre Dame
"*Uncertainty quantification of nuclear mass models using ensemble Bayesian model averaging*"

Sep 2022 **Nuclear Physics in Astrophysics – X**, CERN
"*Variance-based sensitivity analysis in the r-process nucleosynthesis studies and a scalable extension*"

Jun 2021 **CAP Congress**, online
"*Statistical studies of the r-process network calculations*"

Presentations (continued)

Sep 2019 **International Nuclear Physics Conference**, Glasgow, UK
"*Decay Spectroscopy of Neutron-Rich Cd Around the $N = 82$ Shell Closure with GRIFFIN*"

Oct 2018 **APS-JPS DNP Joint Meeting 2018**, Hawaii, USA
"*Decay Spectroscopy of ^{129}Cd with the GRIFFIN Spectrometer*"

Feb 2018 **Winter Nuclear and Particle Physics Conference**, Mont Tremblant, Canada
"*Decay Spectroscopy of ^{129}Cd with the GRIFFIN Spectrometer*"

Jun 2017 **CAP Congress**, Kingston, Canada
"*Decay Spectroscopy of ^{129}Cd with the GRIFFIN Spectrometer*"

Posters

May 2022 **JINA-Frontiers Meeting**, South Bend, USA
"*New tool for sensitivity analysis in the r-process — a case study in the rare-earth peak region*"