

## CURRICULUM VITAE

### Robert Graham Hamish Robertson

Hamish Robertson was born in Ottawa, Canada in 1943 and attended schools in Canada and England. He took his undergraduate degree at Oxford and the Ph.D. at McMaster University in 1971 in atomic-beam and nuclear-structure physics. He went to Michigan State University as a postdoctoral fellow and remained on the faculty, becoming Professor of Physics in 1981. In 1976 he received an Alfred P. Sloan Foundation Fellowship. His research at Michigan State resulted in the first observation of an isobaric quintet of states in nuclei. In addition, he carried out experiments on parity violation, nuclear astrophysics and nuclear reactions. A long-standing question as to whether  $^6\text{Li}$  is mainly primordial or a relatively recent product of astrophysical processes was settled in favor of the latter by a sensitive measurement of the capture of deuterium by helium-4.

In 1981 he joined Los Alamos National Laboratory, and investigated neutrino mass via tritium beta decay and solar neutrino physics. The experimental limit on the mass of the electron neutrino resulting from that work showed that the particle, present in the Universe since the big bang in vast numbers, was nevertheless not sufficiently massive to close the Universe gravitationally. He was appointed a Fellow of Los Alamos National Laboratory in 1988, and initiated the Laboratory's collaboration in the Sudbury Neutrino Observatory project. He was US co-spokesman and (for 2003-4) Scientific Director of SNO. Results from this experiment have shown that electron neutrinos are strongly mixed in flavor and are a superposition of neutrino states with mass, in contradiction to the Standard Model of particle physics. SNO and Super-Kamiokande were honored in 2015 by the award of both the Nobel Prize in Physics and the Breakthrough Prize in Physics to A. McDonald and T. Kajita.

Robertson took a Professorship at the University of Washington in 1994, continuing his work in neutrino physics and receiving, in 1997, the APS Tom W. Bonner Prize. He is a Member of the Canadian Association of Physicists, Member of the IEEE, a Fellow of the Institute of Physics (London) since 1998, a Fellow of the American Physical Society since 1982. In 2003 he was elected to Fellowship in the American Academy of Arts and Sciences and in 2004 to the National Academy of Sciences. In 2008 he was appointed to the endowed Boeing Distinguished Professorship at the University. In 2015 he shared in the award of the Breakthrough Prize in Physics and in 2017 received an honorary DSc from McMaster University. In 2021 he received the Mentoring Award from the APS Division of Nuclear Physics. On sabbaticals and leaves, he has visited Princeton University, Argonne National Laboratory, and Chalk River Nuclear Laboratories. He has chaired the Nuclear Science Advisory Committee and the Division of Nuclear Physics of the APS. A past member of the Board of Physics and Astronomy of the National Research Council, he has also served on NRC Nuclear Physics and Neutrino Astrophysics Panels, the APS-DNP Executive Committee and Program Committee, the APS Bonner Prize and Bethe Prize Committees, the NSERC (Canada) Grant Selection Committee, the Editorial Board of Physical Review D and Annual Reviews of Nuclear and Particle Science, and review panels for the National Science Foundation and the Department of Energy. Robertson retired in 2017, becoming Professor emeritus at the University of Washington.

May 22, 2022

## CURRICULUM VITAE

NAME: Robert Graham Hamish Robertson

BIRTHPLACE: Ottawa, Canada

CITIZENSHIP: US, naturalized May 26, 1993

ADDRESS: Dept. of Physics, Box 351560      TEL:      Office: (206) 616-2745

University of Washington,  
Seattle, WA 98195

MARITAL STATUS: Married, one son  
WIFE: Peggy Dyer Robertson, Ph.D.

### HIGHER EDUCATION:

Ph.D. Physics, 1971  
McMaster University, Canada  
(National Research Council of Canada Scholarships 1965 - 69)

B.A. (1st Class Honors) Natural Sciences, 1965  
M.A. Natural Sciences, 1969  
Oriel College, Oxford University, England  
(Trevelyan Scholarship and Oriel College Open Scholarship)

### POSITIONS HELD:

2017 -	Professor Emeritus
2008 - 2017	Boeing Distinguished Professor
1994 - 2008	Professor University of Washington, Seattle, Washington, 98195
1981 - 1994	Staff Member and Fellow Los Alamos National Laboratory Los Alamos, New Mexico 87545
1981	Professor

1978 - 1981	Associate Professor Michigan State University East Lansing, Michigan 48824
1980	Visiting Scientist Chalk River Nuclear Laboratories Ontario, Canada
1979	Visiting Scientist Argonne National Laboratory Argonne, Illinois 60439
1973 - 1978	Assistant Professor Michigan State University East Lansing, Michigan 48824
1975 - 1976	Research Associate Princeton University Princeton, New Jersey 08540
1972 - 1973	Assistant Research Professor Michigan State University East Lansing, Michigan 48824
1971 - 1972	Research Associate Michigan State University East Lansing, Michigan 48824
1970	Tutorial Instructor McMaster University Canada
1965 - 1969	Laboratory Demonstrator McMaster University Canada

Ph.D. Thesis: "Properties of the Odd-Odd Cobalt Nuclei" (Advisor: R. G. Summers-Gill)

## PRESENT AND PAST RESEARCH INTERESTS:

Weak interactions  
Studies of nuclei far from  $\beta$ -stability  
Atomic structure studies by atomic beam magnetic resonance  
Electron paramagnetic resonance  
Direct nuclear reaction theory  
Nuclear structure studies by nuclear reactions  
Nuclear astrophysics  
Neutrino properties and solar neutrinos  
Nuclear instrumentation

## SOCIETIES:

Institute of Physics (London) 1963 -.  
Canadian Association of Physicists 1968 -.  
American Physical Society 1970 -.  
IEEE 2010 - .

## HONORS AND AWARDS:

Alfred P. Sloan Foundation Fellowship, 1976  
Fellow, American Physical Society, 1982.  
Fellow, Los Alamos National Laboratory, 1988.  
American Physical Society Tom W. Bonner Prize, 1997.  
APS Centennial Speaker, 1998 - 9.  
Fellow, Institute of Physics (London); F. Inst. P., 1998  
Peter Axel Memorial Lecturer, University of Illinois, 2001  
APS Dissertation Award in Nuclear Physics to student Karsten M. Heeger, 2002.  
Leigh Page Prize Lecturer, Yale University, 2003  
Herzfeld Lecturer, Catholic University of America, 2003  
Fellow, American Academy of Arts and Sciences, 2003  
Brattain Lecturer, Whitman College, 2003  
National Academy of Sciences, 2004  
Los Alamos National Laboratory Director's Colloquium, 2005  
Polanyi Prize awarded to SNO Collaboration, 2006  
Boeing Distinguished Professorship, 2008 – 2017  
Washington State Academy of Sciences Founding Class 2008 –

Breakthrough Prize in Physics (SNO collaboration), 2015  
Honorary DSc, McMaster University, 2017  
APS Outstanding Referee, 2020  
APS Division of Nuclear Physics Mentoring Award, 2021

#### ADMINISTRATION:

Spokesman for US SNO Collaboration on Capital Funding, 1989 - .  
(DOE Capital about \$12M)  
US Co-Principal Investigator, SNO Project 1989 - .  
(DOE Operating, 5 US Institutions, about \$5M)  
Co-Principal Investigator, Weak Interactions Group, Los Alamos National Laboratory 1982 – 1994 (DOE and LDRD Operating, about \$1.5M)  
Scientific Director, Center for Experimental Nuclear Physics and Astrophysics (CENPA), University of Washington (DOE Operating, about \$3.5 M)  
Scientific Director pro tem, Sudbury Neutrino Observatory (NSERC and other agencies, about \$3M)  
US Spokesman, KATRIN Project 2001 - 2016.  
(DOE Equipment, 4 US Institutions, about \$3 M)  
Director, Center for Experimental Nuclear Physics and Astrophysics (CENPA), University of Washington (DOE Operating, about \$3.5 M) 2008 – 2017.

#### SERVICE:

NSF and DOE Referee  
Member, ad hoc panel of young nuclear scientists to the Committee on Nuclear Science of the NAS  
Member, NSAC Instrumentation Subcommittee  
Member, Nuclear Physics Panel of NAS Physics Survey Committee  
Member, American Physical Society Program Committee  
Member, American Physical Society Bonner Prize Committee, 1985  
Organizing Committee, 6th International Conference on Atomic Masses, East Lansing, 1979  
Review Panel, NSF-supported Tandem Laboratories, 1981  
Review Panel, DOE-supported Heavy-Ion Outside Users' Programs, 1982  
Referee, Physical Review C and D, Physics Letters, Physical Review Letters, and Journal of Geophysical Research  
Member, NSERC (Canada) Grant Selection Committee, 1983 - 1986

Member, LANL Postdoctoral Committee, 1983 - 1986

Colloquium Committee Chairman, Physics Division, LANL, 1982, 1988 - 92.

Member, NSAC Long-Range Plan Workshop, 1989

Member and Chair, Lawrence Berkeley Laboratory Nuclear Science Division Review Panel, 1986 - 1989

Group Leader for Neutral Current Detection, Sudbury Neutrino Observatory Project, 1990 - .

Member, LANL Centers Advisory Board, 1990.

Chair, LAMPF Electroweak Program Advisory Committee, 1990-1992.

Editorial Board, Physical Review D, 1992-5.

Member, Panel on Neutrino Astrophysics, National Academy of Sciences, 1993-4.

Convenor, American Physical Society Division of Particles and Fields Long-term Planning Study, 1994-5.

Convenor, Snowmass Workshop on Neutrino Astrophysics and Cosmology, June 30 - July 13 1994.

Member, AIP Panel on Physical Review C, 1994 -5.

Convenor, American Physical Society Division of Nuclear Physics Long-range Planning Study, 1994-5.

Member, Visiting Committee for the Division of Physics, Mathematics and Astronomy, CalTech, 1995-.

Member, HEPAP Subpanel on Long-Baseline Neutrino Experiments, 1995-6.

Chair, Nuclear Science Advisory Committee, 1995-6.

Member, Nuclear Science Advisory Committee, 1995-2001.

Member, Board on Physics and Astronomy, National Research Council, 1995-8.

Organizing Committee, INT Conference on Solar Fusion Rates, 1997.

Organizing Committee, ITP Conference on Astrophysics and Cosmology, 1997.

Member, APS Tom W. Bonner Prize Committee, 1997.

International Advisory Committee, ICHEP 98.

Vice-chair, Chair-elect, and Chair, Division of Nuclear Physics, APS, 1998-2000.

Scientific Director, Nuclear Physics Laboratory and Center for Experimental Nuclear Physics and Astrophysics, University of Washington, 1998-

Member, NSAC Intermediate Energy Physics Review Panel, 1998.

Member, Lehman Review, NUMI Long-baseline Neutrino Project. 1998-2000.

Member, NAS/NRC Committee on Physics of the Universe 2000 - 2002.

Member, SAGENAP (Scientific Assessment Group for Experiments in Non-Accelerator Physics), 2000 -.

Chair, APS Division of Nuclear Physics Fellowship Committee, 2002.

Member, NAS/NRC Committee on Neutrino Facilities 2002.

International Advisory Committee, Conference on Neutrinos and Subterranean Science, 2002.

International Advisory Committee, Yamada Advanced Science School, 2003.

Editorial Board, Annual Reviews of Nuclear and Particle Science, 2002 --.

Member, NSAC Panel on Future Facilities (Orbach Review). 2003.

Member, Physics Division Review Committee, Los Alamos National Lab, 2003-8.

Member, Review Panel on Fundamental Physics at SNS, 2003.

Member, Coordinating Committee for APS Study on Opportunities in Neutrino Physics

Chair, Writing Committee, APS Study on Opportunities in Neutrino Physics

Member, Review Panel for Fermilab Program (DOE)

Chair, Advisory Committee on TRIUMF 2004 – 2007

Coordinator for University of Washington, IUPAP conferences in High-Energy Physics

NSF Review Panel for UT Austin Project to Measure Neutrino Mass, 2004

DOE Review Panel for Stanford Project “EXO” in Double Beta Decay, 2005

Principal Investigator, NSF Solicitation 1 Process, Deep Underground Science and Engineering Laboratory.

NSAC Subcommittee on Implementation of the 2002 Long Range Plan (Tribble Committee), 2005.

Member, Los Alamos National Laboratory LDRD External Review Committee, 2005.

Member, Dark Matter Scientific Assessment Group, 2006 –

Co-Chair, APS Town Meeting on Fundamental Symmetries and Neutrino Physics, 2006 –

Tenure Review Committee External Member, Columbia University, 2006

Member NSAC Long-Range Plan Resolution Committee, 2007

Member Review Committee for North Carolina State University Department of Physics, 2007

Member National Academy of Sciences Review Committee for NIST Neutron Science Program, 2007

Member NSERC Review Panel, Institute of Particle Physics, 2007

Organizing Committee, INT Conference on Solar Fusion Rates, 2009.

Member, DOE Review Panel, Yale Wright Nuclear Structure Laboratory, 2009.

Member, Review Panel on MiniBooNE, Los Alamos National Lab, 2009.

Chair, Nuclear Physics Screening Panel, Section 13, National Academy of Sciences 2009 – 11.

Member, Committee on Assessment and Outlook for Nuclear Physics, NRC, 2010 – 11.

Chair, Nominating Committee, Section 1: Physical and Mathematical Sciences, Washington State Academy of Sciences 2010 – 3.

Member, DOE Review Panel, Neutron Electric Dipole Moment Project, 2010.

Member, NSF Review Panel on Nab project, 2011 – 2.

Member, Long-Baseline Neutrino Experiment Science Capabilities Panel, 2011.

Member, Initiative Proposal Review Panel, PNNL, 2011.

Organizing committee, 25<sup>th</sup> anniversary symposium on dark matter, PNNL, 2012.

Member, NRC Decadal Survey of Nuclear Physics, 2011 – 2.

Member, Advisory Committee, Physical Sciences Directorate, Oak Ridge National Laboratory, 2012 – 5.

Member, Board of Directors, Washington State Academy of Sciences, 2013 – 4.

Convenor, Neutrino Mass Working Group, Snowmass Community Planning 2012 – 4.

Member, NSAC Subcommittee on Scientific Facilities, 2013.

Panel member, NSF review of Indiana University 2013.

Panel member, NSF review of nEDM project 2013 – 5.

Member, External Advisory Committee, Kavli Institute for Cosmological Physics, University of Chicago, 2013 --.

Member, ORNL Physics Division Advisory Committee, 2013 -- .

Co-Convenor, APS Town Meeting on Fundamental Symmetries and Neutrinos, Chicago, September 2014.

Vice-Chair, APS Bethe Prize Committee, 2014; Chair 2015.

Panel member, NSF review of University of Illinois at Champaign-Urbana 2014.

Member, NSAC Long-Range Plan Resolution Group 2014-15.

Member, ORNL Physics Division Advisory Committee, 2013 - 15.

Chair, NSF review of Indiana University 2015-6.

International Advisory Committee, Neutrinos 2016, London UK

Member, PNNL Physics and Computational Sciences Division Advisory Committee, 2016 – .

Vice-Chair, APS Stuart Jay Freedman Prize Committee, 2019; Chair 2020.  
Member, APS Norman F. Ramsey Prize Committee, 2021.

### **Teaching and University Service (University of Washington)**

#### Courses:

- 1995: W 528A Current Topics in Research  
Sp 487/496 Special Topics
- 1996: W 334 Electrical Circuits I  
Sp 335 Electrical Circuits II
- 1997: W 334 Electrical Circuits I  
Sp 335 Electrical Circuits II
- 1998: W 334 Electrical Circuits I  
Sp 335 Electrical Circuits II  
Au 527 Introduction to Research
- 1999: W 334 Electrical Circuits I  
Sp 335 Electrical Circuits II  
Au 434 Computer Interfacing Laboratory
- 2000: W 528 Introduction to Research  
Sp 487/496 Senior Honors Seminar, Current Problems  
Au 585 Seminar on Nuclear Physics
- 2001: W Sabbatical leave  
Sp Sabbatical leave  
Au: 119 Introductory Laboratory (Waves)  
123 Introductory Laboratory (Waves; calculus-based)
- 2002: W: 119 Introductory Laboratory (Waves)  
123 Introductory Laboratory (Waves; calculus-based)  
Sp: 123 Introductory Laboratory (Waves; calculus-based)  
Au: 123 Introductory Laboratory (Waves; calculus-based)
- 2003: W: 123 Introductory Physics Lecture (Waves; calculus-based)  
Sp: 123 Introductory Laboratory (Waves; calculus-based)
- 2004: Au: 119 Introductory Laboratory (Waves)  
123 Introductory Laboratory (Waves; calculus-based)
- 2005: W: 123 Introductory Physics Lecture (Waves; calculus-based)

Sp: 119 Introductory Laboratory (Waves)  
123 Introductory Laboratory (Waves; calculus-based)  
Au: 118/122 Introductory Laboratory (E&M)

2006: W: 118/122 Introductory Laboratory (E&M)  
Sp: 118/122 Introductory Laboratory (E&M)  
Au: 118/122 Introductory Laboratory (E&M)

2007: W: 118/122 Introductory Laboratory (E&M)  
Sp: 118/122 Introductory Laboratory (E&M)  
Au: 117/121 Introductory Laboratory (Mechanics)

2008: W: 495 Special Topics  
Sp: 118/122 Introductory Laboratory (Heat, E&M)  
Au: 118/122 Introductory Laboratory (Heat, E&M)

2009: W: off (CENPA Director)  
Sp: off (CENPA Director)  
Au: off (CENPA Director)

2010: W: off (CENPA Director)  
Sp: off (CENPA Director)  
Au: off (CENPA Director)

2011: W: off (CENPA Director)  
Sp: 119/123 Introductory Laboratory (Waves; calculus-based)  
Au: off (CENPA Director)

2012: W: off (CENPA Director)  
Sp: off (CENPA Director)  
Au: off (CENPA Director)

2013: W: off (CENPA Director); 585 Nuclear seminar  
Sp: off (Boeing Prof.) ; 585 Nuclear seminar  
Au: off (CENPA Director)

2014: W: off (CENPA Director); 585 Nuclear seminar  
Sp: off (Boeing Prof.) ; 585 Nuclear seminar  
Au: off (CENPA Director)

2015: W: off (CENPA Director); 585 Nuclear seminar  
Sp: off (Boeing Prof.); 585 Nuclear seminar  
Au: off (CENPA Director)

2015: W: off (CENPA Director); 585 Nuclear seminar  
Sp: off (Boeing Prof.)  
Au: off (CENPA Director)

2016: W: off (CENPA Director); 585 Nuclear seminar

Sp: off (Boeing Prof.)

Au: off (CENPA Director)

2017: Retired

**Supervision of Graduate Students:**

1994: Alan W. P. Poon (co-advisor with C. Waltham, UBC)

1995: Poon, Charles A. Duba,

1996: Poon, Duba, Karsten M. Heeger,

1997: Poon, Duba, Heeger

1998: Poon, Duba, Heeger, Theresa Bullard. Poon passed the final oral at UBC  
on July 9, 1998.

1999: Duba, Heeger, Bullard.

2000: Duba, Heeger, Bullard.

2001: Duba, Heeger, Bullard, Minesh Bacrania

2002: Duba, Heeger, Bullard. Heeger passed the final oral at UW on June 12,  
2002.

2003: Duba, Noah Oblath

2004: Duba, Oblath

2005: Duba, Oblath

2006: Duba passed final oral at UW on May 2, 2006, Oblath, Hok Wan Chan  
Tseung

2007: Oblath, Wan

2008: Oblath, Laura Bodine, Eric Martin (600). Wan passed final oral at Oxford  
on Oct. 30, 2008 (S. Biller, advisor).

2009: Bodine, Martin. Oblath passed final oral June 11, 2009.

2010: Bodine, Martin, Rachel Rosten (600 Su10, Au10).

2011: Bodine, Martin, Rachel Rosten (600 W11, Sp11), Jared Kofron.

2012: Bodine, Martin, Kofron, Micah Buuck, Sarah Mangiameli (600 Au12).

2013: Bodine, Martin, Kofron.

2014: Bodine, Martin, Kofron.

2015: Bodine, Martin, Kofron.

2016: Martin, Machado.

2017: Martin, Machado, Ying-Ting Lin (co-directing with D. Parno).

2018: Machado, Lin

2019: Machado, Lin

PhD. Committees:

1994: Michael C. Browne, Peter M. Thornewell

1995: Browne, Thornewell

1996: James Beck, Browne, Bonnie Light (GSR), Poon, John Putz, Thornewell

1997: Beck, Browne, Duba, Heeger, Poon, Putz, Thornewell, H. Vija

1998: Browne, Duba, Heeger, Poon, Putz, James Reid, Vija

1999: Browne, Duba, Heeger, Putz, Reid, Vija, Michio Kurimoto (GSR).

2000: Duba, Heeger, Reid, Vija, M. Kurimoto (GSR), Eric Mohrmann.

2001: Duba, Heeger, Reid, Vija, M. Kurimoto (GSR), E. Mohrmann, B. Staggmeier (GSR).

2002: Duba, Heeger, Reid, M. Kurimoto (GSR), E. Mohrmann, B. Staggmeier (GSR).

2003: Duba, M. Kurimoto (GSR), E. Mohrmann, Matthew Swallows, Minesh Bacrania, Laura Stonehill, Adam Cox.

2004: Duba, Kurimoto (GSR), Mohrmann, Swallows, Bacrania, Stonehill, Cox.

2005: Duba, Kurimoto (GSR), Mohrmann, Swallows, Bacrania, Stonehill, Cox, Kathryn Miknaitis, William Liu (GSR).

2006: Duba, Kurimoto (GSR), Mohrmann, Swallows, Bacrania, Cox, Liu (GSR), Noah S. Oblath, Michelle Leber.

2007: Mohrmann, Swallows, Cox, Liu (GSR), Oblath, Leber, Brian Smigelski.

2008: Mohrmann, Oblath, Leber, Brandon L. Wall, Laura Bodine, Smigelski.

2009: Oblath, Leber, Wall, Bodine, Smigelski.

2010: Wall, Bodine, Eric L. Martin, Smigelski.

2011: Wall, Bodine, Martin, Jonathan Diaz Leon, Jared Kofron, Justin Robertson (GSR).

2012: Wall, Bodine, Martin, Leon, Kofron, Justin Robertson (GSR), Dmitry Lyapustin, Zoreh Davoudi.

2013: Wall, Bodine, Martin, Leon, Kofron, Robertson (GSR), Lyapustin, Davoudi.

2014: Bodine, Martin, Leon, Kofron, Robertson (GSR), Lyapustin, Davoudi.

2015: Bodine, Micah Buuck, Julieta Gruszko, Martin, Leon, Kofron, Lyapustin, Davoudi, Oliver Hoidn.

2016: Buuck, Gruszko, Ian Guinn, Hoidn, Leon, Martin, Lin  
2017: Buuck, Guinn, Martin, Lin  
2018: Buuck, Guinn, Lin  
2019: Buuck, Guinn, Lin, Machado, Ashtari Esfahani  
2020: Ashtari Esfahani

*Graduate Students – where are they now?*

Arno G. Ledebuhr. PhD Michigan State University 1982. Presently Principal Physicist, Lockheed Martin Space Systems Company, Sunnyvale CA.

David A. Knapp. PhD Princeton University 1985 (co-advisor: A.B. McDonald). Presently at Lawrence Livermore National Laboratory.

Alan W.P. Poon. PhD University of British Columbia 1998 (co-advisor: C. Waltham). Presently Deputy Director and Program Head (Neutrinos), Lawrence Berkeley National Laboratory. awpp@lbl.gov

Karsten M. Heeger. PhD University of Washington 2002. Presently Professor of Physics and Director, Wright Laboratory, Yale University.  
heeger@wisc.edu

Charles A. Duba. PhD University of Washington 2006. Presently Associate Dean, Digipen Institute, Redmond WA. duba@digipen.edu

H.S. Wan Chan Tseung. DPhil University of Oxford 2008 (co-advisor: S. Biller). Presently Staff Scientist, Mayo Clinic, Rochester, MN.

Noah S. Oblath. PhD University of Washington 2009. Presently Staff Scientist at Pacific Northwest National Laboratory. [nsoblath@gmail.com](mailto:nsoblath@gmail.com)

Laura I Bodine (now Minter). PhD University of Washington 2015. Faculty, Seattle Central Community College. [lbodine@uw.edu](mailto:lbodine@uw.edu)

Jared Kofron. PhD University of Washington 2015. Presently staff at Glowforge Inc., Seattle. [jared.kofron@gmail.com](mailto:jared.kofron@gmail.com)

Eric L. Martin. PhD University of Washington 2017. University of North Carolina. Eric Machado (now Eris Machado). UW. Departed 2019.

Ying-Ting Lin. PhD University of Washington 2019 (co-advisor: Diana S Parno). National service in Taiwan.

Postdoctoral Fellows – where are they now?

W.-S. Jones Chien. 1973-5 Michigan State University. Present whereabouts unknown.

John F. Wilkerson. 1982-5 Los Alamos National Laboratory. Presently John R. and Louise S. Parker Distinguished Professor of Physics, University of North Carolina, Chapel Hill NC. jfw@physics.unc.edu

Thomas Spencer. 1988-9 Los Alamos National Laboratory. Present whereabouts unknown.

Steven R. Elliott. 1988-1991 Los Alamos National Laboratory. Presently Fellow, Los Alamos National Laboratory, Los Alamos NM. elliotts@lanl.gov

David L. Wark. 1987-1990 Los Alamos National Laboratory. Presently Professor of Physics, Imperial College, London, UK. david.wark@stfc.ac.uk

Joseph V. Germani 1994-1997 University of Washington. Presently Senior Software Test Engineer at NanoString Technologies, Seattle, WA. joe@germani.org

Thomas D. Steiger 1994-1997 University of Washington. Presently Member of Technical Staff, Cymer Corp., San Diego, CA. steiger@alum.mit.edu

Ryuta Hazama. 2000-2003 (Japan Fellow) University of Washington. Presently Faculty, Osaka Sangyo University. hazama@rcnp.osaka-u.ac.jp

Joseph A. Formaggio. 2001-2005 University of Washington. Presently Professor and Division Director, Massachusetts Institute of Technology, Cambridge MA. josephf@mit.edu

Sean McGee. 2002-2006 University of Washington. Presently Research Scientist, Dept. of Genome Sciences, University of Washington, Seattle, WA. srmcgee@uw.edu

Brent VanDevender. 2006-2010 University of Washington. Presently Chief Scientist, Pacific Northwest National Laboratory, Richland WA. brent.vandevender@pnnl.gov

Kazumi Tolich. 2008-2009. Presently Instructor, University of Washington, Seattle, WA. ktolich@uw.edu

Jarek Kaspar. 2008 – 2010 University of Washington. Presently Affiliate Assistant Professor, University of Washington. kaspar@uw.edu

Andreas Knecht. 2009-2012 University of Washington. Presently Staff Scientist, Paul Scherrer Institute, Switzerland. andreas.knecht@cern.ch

Diana S. Parno. 2010 – 2017 University of Washington. Presently Assistant Professor, Carnegie-Mellon University, Pittsburgh, PA [dparno@cmu.edu](mailto:dparno@cmu.edu)  
Martin Fertl 2013 – 2019 University of Washington. Presently Associate Professor, Johannes Gutenberg University, Mainz, Germany.  
Elise Novitski 2018 --.  
Christine Claessens 2021 --.  
Alexander Marsteller 2022 --.

*Supervision of Undergraduate Students in Research:*

- 1997: Steve Furlanetto (REU), M. Beard, Tom Luu, C. Becker
- 1998: Jessica Dunmore (REU), A. McNabb.
- 1999: Dawn Erb, Toshiko Asai.
- 2000: T. Asai, Lincoln Webbeking.
- 2001: Hideko Iwamoto
- 2002: H. Iwamoto
- 2003: Quinn Minor (hourly), B. Munro (hourly)
- 2005: Gul Onengut
- 2007: Julie Michel
- 2008: Eugene Ngai (hourly)
- 2010: Jonathan Rollins (hourly)
- 2011: Kevin Wierman (hourly, then 403 in spring).
- 2015: Matt Kallander (499)
- 2016: Matt Kallander (499)
- 2017: Matt Kallander (499)
- 2019: Jeremy Hartse (U. Rochester volunteer), Madison Durand (499)
- 2020: Madison Durand, Harrison Robel (499), Vedantha Venkatapathy (MIT),  
Hao Wang (499)

*Committees*

- 1994: Library
- 1995: TA Affairs, A. Nelson Review, R. Mittelman Review (Chair)
- 1996: Instructional Facilities, U/G advising, Faculty Senate, J. Lestone Review  
(Chair)
- 1997: Instructional Facilities, Development, D. Storm Review, Faculty Senate, D.  
Kaplan Review, M. Savage Review
- 1998: Development, Faculty Senate, M. Savage Review
- 1999: M. Savage Review, T. Zhao Review (Chair)
- 2000: General Curriculum Development, Instructional Quality
- 2001: Executive Committee  
Research Support Committee (chair)

CENPA Search Committee (chair)

2002: Executive Committee

Research Support Committee (chair)

CENPA Search Committee (chair)

12x Laboratory Committee

M. Savage Review

2003: 12x Laboratory Committee

12x Curriculum Committee

M. Savage Review

2005: Instructional Quality Committee

12x Curriculum Committee

Experimental Faculty Search Committee

INT Director Search Committee (chair)

2006: Instructional Quality Committee

12x Curriculum Committee

Experimental Faculty Search Committee

INT Director Search Committee (chair)

Ad Hoc Committee on Formation of Washington Academy of Sciences

2007: Instructional Quality Committee

12x Curriculum Committee

Experimental Faculty Search Committee

A. Karch Tenure Review Committee (Chair)

Executive Committee

2008: Instructional Quality Committee

1xx Laboratory Committee

Executive Committee

A. Karch Review Committee

Faculty Search Committee

2009: Instructional Quality Committee

1xx Laboratory Committee

Executive Committee

T. Zhao Review Committee (Chair)

Faculty Search Committee

2010: Instructional Quality Committee

David Cobden Review Committee (Chair)

2011: Instructional Quality Committee

David Pengra Review Committee  
Qualifying Exam restructuring Committee  
Chemistry Dept. Decadal Review  
2012: Curriculum Development Committee (22x)  
    Instructional Quality Committee  
2013: Curriculum Development Committee (22x)  
    Instructional Quality Committee  
    Sanshiro Enomoto Review Committee  
2014: Instructional Quality Committee  
    Sanshiro Enomoto Review Committee  
2015: Instructional Quality Committee  
    Sanshiro Enomoto Review Committee  
2016: Instructional Quality Committee  
    Sanshiro Enomoto Review Committee

*Supervision of Staff:*

1994: Tom H. Burritt  
1995: Burritt, James E. Franklin  
1996: Burritt, Franklin  
1997: Burritt, Franklin  
1998: Burritt, Franklin  
1999: Burritt, Franklin  
2000: Burritt, Franklin (to 6/00)  
2001: Burritt  
2002: Burritt  
2003: Burritt, Brandon Wall  
2004: Burritt, Wall  
2005: Burritt  
2006: Burritt  
2007: Burritt  
2008: Burritt, John F. Amsbaugh, Douglas I. Will, Gregory C. Harper, Victoria A. Clarkson, Timothy D. Van Wechel, Allan W. Myers, Richard Seymour, Henry Simons

- 2009: Burritt, Amsbaugh, Will, Harper, Clarkson, Van Wechel, Myers, Seymour, Simons
- 2010: Burritt, Harper, Clarkson, Van Wechel, David A. Peterson
- 2011: Burritt, Harper, Clarkson, Van Wechel, Peterson
- 2012: Burritt, Harper, Clarkson, Van Wechel, Peterson
- 2013: Harper, Clarkson, Van Wechel, Peterson, Woods
- 2014: Clarkson
- 2015: Clarkson
- 2016: Clarkson

## PUBLICATIONS

1. "Hyperfine Interactions in the  $J = 5$  States of  $^{147}\text{Sm}$  and  $^{149}\text{Sm}$ ", R. G. H. Robertson, J. C. Waddington, and R. G. Summers-Gill, Can. J. Phys. 46, 2499 (1968).
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"Experimental Determination of Neutrino Mass," R.G.H. Robertson, Invited Talk, Aspen Winter Physics Conference, Aspen, CO, January 29 – February 2, 2007.

"A Deep Underground Science and Engineering Laboratory in the U.S.," Invited talk, NW Sectional Meeting of the APS, Pocatello, ID, May 17 – 19, 2007.

"Neutrino Observatories, Present and Future," Invited talk, *Nuclear Astrophysics, 1957 – 2007, Beyond the First Fifty Years*, Pasadena, July 23 – 28, 2007.

“The KATRIN Experiment,” Invited talk, Topics in Astroparticle and Underground Physics (TAUP) International Conference, Sendai, Japan, Sept. 11 – 15, 2007: “KATRIN: an experiment to measure the neutrino mass,” R.G.H. Robertson for the KATRIN Collaboration, in Proc. Topics in Astroparticle and Underground Physics, Sendai, Japan, Sept. 11-14, 2007, J.Phys.:Conf. Ser. **120** (2008) 052028; arXiv:0712.3893 [nucl-ex].

“Experimental Determination of Neutrino Mass,” R.G.H. Robertson, Invited Talk, Focus Meeting on Neutrinos, Institute for Physics and Mathematics of the Universe, Kashiwa, Japan, March 17 – 20, 2008.

“Direct Measurements of Neutrino Mass,” Invited Talk, Carolina Symposium on Neutrino Physics, Columbia, SC, May 15 – 17, 2008.

“Results from the Third and Final Phase of SNO,” Invited Talk, Int. Conf. on Neutrino Physics and Astrophysics ‘Neutrinos 2008’, Christchurch, New Zealand, May 26 – 31, 2008.

“Karlsruhe Tritium Neutrino Experiment,” Contributed talk, DOE Review of KATRIN project, Seattle, WA, June 16 – 17, 2008.

“Low-noise Preamps for Ge,” Contributed talk, Majorana Collaboration Meeting, Berkeley, CA, Aug. 12 – 14, 2008.

“Three-year Proposal for Support of CENPA,” Contributed talk, CENPA Advisory Committee, July 11, 2008; DOE Panel Review of CENPA, Seattle, Sept. 15 – 17, 2008.

“Personnel, Facilities, and Budget” Contributed talk, DOE Panel Review of CENPA, Seattle, Sept. 15 – 17, 2008.

“Neutrinos: Particles with Maddeningly Few Properties,” Invited Talk, APS DNP meeting, Oakland, CA, Oct. 23 – 26, 2008.

“Report on the Third and Final Phase of the Sudbury Neutrino Observatory,” R.G.H. Robertson, in Proc. International Conference on Neutrino Physics and Astrophysics “Neutrinos 2008”, Christchurch, New Zealand, May 25 – 31, 2008; J. Phys. Conf. Ser. 136, 022002 (2008).

“Direct Determination of Neutrino Mass,” R.G.H. Robertson, in Proc. Carolina International Symposium on Neutrino Physics (CISNP), Columbia, South Carolina, 15-17 May 2008; J. Phys. Conf. Ser. (in press); arXiv:0807.4258

“Neutrino Physics for the Masses,” R.G.H. Robertson, Colloquium, Michigan State University Feb. 25, 2009; Colloquium, University of Chicago, Feb. 26, 2009; Colloquium, University of Victoria, April 1, 2009, Argonne National Laboratory, Feb. 26, 2010.

“Detecting Neutrinos,” R.G.H. Robertson, Invited lectures, INT Summer School, Seattle, WA July 2 – 10, 2009.

“Kinematic Measurements,” R.G.H. Robertson, Invited talk, INT Workshop: The Future of Neutrino Mass Measurements, Seattle, WA, Feb. 8 – 11, 2010.

“Neutrino Experiments: A Summary,” R.G.H. Robertson, Invited Conference Summary, XXIV International Conference on Neutrino Physics and Astrophysics (Neutrinos 2010), June 14-19, 2010, Athens, Greece; Nuclear Physics B (Proc. Suppl.) 229–232 (2012) 421–426.

“The Neutrino @ 80,” R.G.H. Robertson, Invited talk, “The INT @ 20: The Future of Nuclear Physics and its Intersections,” July 1-2, 2010, Institute for Nuclear Theory, Seattle, WA.

“In search of a better preamp,” R.G.H. Robertson, CENPA Monday meeting talk, Jan. 3, 2011.

“Solar neutrino flux in 3 lines” R.G.H. Robertson, Invited talk, “Sterile Neutrinos at the Crossroads” workshop, Virginia Tech, Blacksburg, VA Sept. 26 – 28, 2011.

“Catching up with the neutrino,” Colloquium, Mississippi State University, Nov. 7, 2011.

“Weighing neutrinos: What is the mass scale?” R.G.H. Robertson, Invited Talk, “Fundamental Physics at the Intensity Frontier” Workshop, Nov. 30 – Dec. 2, 2011, Washington, DC.

“Catching up with the neutrino,” R.G.H. Robertson, Invited talk, Symposium on Electroweak Nuclear Physics, Duke University, Durham, NC March 8 – 9, 2012.

“Weak Interaction Studies with  ${}^6\text{He}$ ,” A. Knecht, Z. T. Alexander, Y. Bagdasarova, T. M. Cope, B. G. Delbridge, X. Flechard, A. Garcia, R. Hong, E. Lienard, P. Mueller, O. Naviliat-Cuncic, A. S. C. Palmer, R. G. H. Robertson, D. W. Storm, H. E. Swanson, S. Utsuno, W. Williams, C. Wrede, D. W. Zumwalt, Proc. Eleventh Conference on the Intersections of Particle and Nuclear Physics (CIPANP 2012), arXiv:1208.6433.

“Catching up with the neutrino,” R.G.H. Robertson, Invited talk, Robert McKeown Festschrift, Durham NC, March 8-10, 2012.

“Solar neutrinos, the physics gold mine,” R.G.H. Robertson, Invited talk, Neutrinos and Dark Matter Symposium, Nara, Japan, June 11-16, 2012.

“Noise Considerations for a Very Low Threshold Semiconductor Detector System,” J. Leon, A. Knecht, M.L. Miller, D.A. Peterson, R.G.H. Robertson, and T.D. Van Wechel; IEEE Trans. Nucl. Sci. 2012 in press.

“Neutrino Mass, Lepton Number, and the Origin of Matter,” Invited talk, Fundamental Symmetries and Neutrinos Town Meeting, Chicago, IL Aug. 10, 2012.

“Neutrino Mass,” Invited lecture, TRIUMF Summer Institute, Vancouver BC, Aug. 13, 2012.

“Neutrino Mass, Lepton Number, and the Origin of Matter,” Invited talk, NSAC Working Group Meeting, Washington DC, Sept. 7-9, 2012.

“Neutrino Mass Measurements,” R.G.H. Robertson, Invited talk, European Strategy for Particle Physics, Krakow, Poland, Sept. 10-12, 2012.

“Neutrino Mass, Lepton Number, and the Origin of Matter,” Invited talk, APS DNP Town Meeting, Newport Beach CA, Oct. 25, 2012.

“Neutrinoless Double Beta Decay,” R.G.H. Robertson, CENPA Monday meeting talk, Dec. 12, 2012.

“New Directions in Neutrino Physics,” Invited Summary talk, Aspen Winter Conference, Aspen CO, Feb. 4-9, 2013.

“Status quo and future evolution of  $\theta_{12}$  and  $\Delta m_{12}^2$ ,” Invited talk, Intensity Frontier Neutrino Workshop, SLAC, March 6-8, 2013.

“Summary – Session Nu3: Absolute neutrino mass” Invited talk, Intensity Frontier Neutrino Workshop, SLAC, March 6-8, 2013.

“KATRIN: an experiment to determine the neutrino mass from the beta decay of tritium,” R.G.H. Robertson for the KATRIN Collaboration, White Paper for the Snowmass Community Planning Workshops, 2013.

“Project 8: Measuring Neutrino Masses Using Frequency-based Techniques,” P.J. Doe, R.G.H. Robertson, L.J Rosenberg, G. Rybka, J.A. Formaggio, N.S. Oblath, M. Leber, B. Montreal, D. Asner, and B.A. VanDevender,” White paper presented to DOE Office of Nuclear Physics, Jan. 30, 2013.

“Solar neutrinos, the physics gold mine,” Invited talk, Carolina International Symposium on Neutrino Physics 2013, Columbia SC, May 19 – May 22, 2013.

“Fundamental symmetries and neutrinos at CENPA,” Invited presentation, DOE Comparative Review, Gaithersburg, MD June 25, 2013.

“Fundamental symmetries and neutrinos from 30,000 feet,” Invited talk, RHIC Users Group, Brookhaven NY, June 26, 2013.

“Project 8: Determining neutrino mass from tritium beta decay using a frequency-based method,” P.J. Doe, J. Kofron, E.L. McBride, R.G.H. Robertson, L.J Rosenberg, G. Rybka, S. Doelman, A. Rogers, J.A. Formaggio, D. Furse, N.S. Oblath, B.H. LaRoque, M. Leber, B. Montreal, M. Bahr, D.M. Asner, A.M. Jones, J. Fernandes, B.A. VanDevender, R. Patterson, R. Bradley, and T. Thuemmler,” White paper submitted to the Snowmass Conference, 2013; arXiv 1309.7093.

“Summary – Session Nu3: Absolute neutrino mass,” Invited talk, Snowmass Conference, Minneapolis MN, August 2, 2013.

“Towards a tritium experiment: Sensitivity to  $m_\nu$ ,” Contributed talk, Project 8 collaboration meeting, Richland WA, October 14, 2013.

“Neutrino Mass -- a long wait for a little weight,” Invited talk, Freedman Memorial Symposium, Berkeley CA, January 11, 2014.

“Phenomenology of the Final State Distribution,” Contributed talk, Workshop on final states, Karlsruhe, Germany, March 5, 2014.

“Can neutrino mass be measured using  $^{163}\text{Ho}$ ?” CENPA Monday meeting, Seattle WA, March 24, 2014.

“Beta Decay: A physics garden of earthly delights,” Plenary talk, APS April meeting, Savannah GA, April 4-8, 2014.

“Project 8: the future of neutrino mass measurement?” Invited talk, International Symposium on Astroparticle Physics, Kingston, Ontario, May 30-31.

“Direct probes of neutrino mass,” Plenary talk, Neutrino Oscillation Workshop, Otranto, Lecce, Italy, Sept. 7-14, 2014; Nucl.Part.Phys.Proc. 265-266 (2015) 7-12.

“On to Phase II”, Talk at Project 8 Collaboration Meeting, Seattle, Nov. 5-6, 2014.

“Fundamental symmetries, neutrinos, neutrons, and astrophysics,” Invited presentation, Long-Range Plan Working Group, Washington, DC, Nov. 11, 2014.

“Progress toward measuring the mass of the neutrino,” Colloquium, Notre Dame University Nov. 12, 2014; Michigan State University Nov. 13, 2014, The Ohio State University Feb. 3, 2015; Washington State University Sept. 22, 2015; Oregon State University April 4, 2016.

“The SNO Experiment,” Nobel celebration colloquium, University of Washington, Oct. 12, 2015.

“The Sun shines brightest at night: Reflections on the solar neutrino problem,” Invited talk, APS April Meeting, Salt Lake City, UT April 16-19, 2016; APS NW Section Meeting, Penticton, BC May 13-14, 2016; Kemper Colloquium, Florida State University, Sept. 29, 2016.

“Status report on an electron tagger for KATRIN,” KATRIN collaboration meeting, Karlsruhe, Germany, March 7-11, 2016.

“Phase IV: Atomic tritium,” Project 8 collaboration meeting, Richland WA, March 21-23, 2016.

“Atomic Tritium: Plan B,” Project 8 collaboration meeting, Seattle, WA, October 26, 2016.

“Progress toward a direct measurement of the mass of the neutrino,” Invited talk, International symposium on parity violation and neutrino physics (Inauguration of the T.D. Lee Institute); Shanghai, China, November 28-29, 2016.

“Progress toward a direct measurement of the mass of the neutrino,” Invited talk, Neutrino Symposium: a Gerry Garvey Festschrift, Seattle, WA, December 10, 2016.

“Project 8: towards a direct measurement of the mass of the neutrino,” Invited talk, Lake Louise Winter Institute, Lake Louise, AB, February 19 – 25, 2017.

“TRIMS status report,” KATRIN Collaboration Meeting, Karlsruhe, Germany, March 6, 2017.

“Phase IV Development,” Project 8 Collaboration Meeting, Cambridge MA, March 20 – 22, 2017.

“Progress toward measuring the mass of the neutrino,” Colloquium, University of Illinois, Champaign-Urbana IL, April 5, 2017.

“Progress toward a direct measurement of neutrino mass,” Invited talk, Baksan 50<sup>th</sup> Anniversary Symposium, Baksan, Russia, June 6, 2017.

“Remarks”, Commencement Address, McMaster University June 16, 2017.

“Project 8: a new approach to measuring neutrino mass,” Contributed talk, APS DNP meeting, Pittsburgh PA, Oct. 26, 2017.

“The joy of traps (*magnetic* traps),” CENPA Monday Meeting, May 7, 2018.

“KATRIN Prelude and Fugue,” Invited presentation, KATRIN Inauguration Symposium, Karlsruhe, June 11, 2018.

“SNO: The neutrino’s day in the sun,” Invited talk, 5<sup>th</sup> International Conference on Solar Neutrinos, Dresden, June 12-15, 2018.

“Experimental study of final states in the beta decay of molecular tritium,” Contributed talk, APS April meeting, Denver 2019.

“TRIMS: Experimental study of final states in the beta decay of molecular tritium,” Invited talk, Heraeus Symposium, Bad Honnef, Germany, July 8, 2019.

“The Direct Road to Neutrino Mass,” Invited talk, Wick Haxton Festschrift “Looking for ν Physics on Earth and in the Cosmos,” Lawrence Berkeley National Laboratory, January 7, 2020.

“The Direct Road to Neutrino Mass,” Invited seminar, Physics Division, Oak Ridge National Laboratory, Oak Ridge TN, October 15, 2020.