

University of Wisconsin
Department of Physics
1150 University Avenue
Madison, WI, 53706, USA

Phone: 608-263-2264
Fax: 608-263-0800
Email: heeger@wisc.edu
<http://neutrino.physics.wisc.edu>

Appointments

- Since 2009 **Associate Professor of Physics** (with tenure)
University of Wisconsin, Madison
- 2006-2009 **Assistant Professor of Physics**
University of Wisconsin, Madison
- 2005 - 2006 **Physicist Scientist**
Lawrence Berkeley National Laboratory, Physics Division
- 2002 – 2005 **Chamberlain Fellow, Physicist Scientist**
Lawrence Berkeley National Laboratory, Physics Division
- 1996 – 2002 **Research Assistant**
University of Washington, Seattle
Center for Experimental Nuclear Physics and Astrophysics

Affiliations

- Since 2008 **Senior Scientist** at the Institute for Physics and Mathematics of the Universe
(IPMU), Tokyo, Japan, <http://www.ipmu.jp/members/>
- Since 2006 **Guest Scientist**, Lawrence Berkeley National Laboratory (LBNL),
Nuclear Science Division, Berkeley, CA, USA

Education

- August 2002 **Ph.D. in Physics**
*“Model-Independent Measurement of the Neutral Current Interaction Rate of
Solar ^8B Neutrinos with Deuterium in the Sudbury Neutrino Observatory”*
University of Washington, Seattle, Washington, USA
Thesis Advisor: Prof. R.G.H. Robertson
- July 1999 **Master of Arts (M.A.)**
Oxford University, Oxford, England
- December 1996 **Master of Science (M.Sc.) in Physics**
University of Washington, Seattle, Washington, USA
- June 1995 **Bachelor of Arts (B.A. Hons.) in Physics**
Oxford University, England

Professional Training

- Aug 2008 – Present **Project Management Masters Certificate Program**
University of Wisconsin, School of Business
<http://exed.wisc.edu/projectmanagement/>
- [Persuasion Skills for the Project Manager – April 2010]
 - [MS Project – Nov 2009]
 - [Managing Project Risks – Oct 2009]
 - Negotiating and Contracting with Project Service Providers - Feb 2009
 - Project Leadership Communication - August 2008
 - Project Management: Planning, Scheduling, and Control - August 2008

Research Experience & Scientific Collaborations

- Since 2006 **MARE** (Microcalorimeter Arrays for a Rhenium Experiment)
- Steering Committee Member (2006-)
 - Performing sensitivity studies to assess the physics potential of a bolometric direct neutrino mass measurement
- Since 2005 **CUORE** (Cryogenic Underground Observatory for Rare Events)
- Calibration Subsystem Manager (2006-)
 - CUORE Technical Coordinator Board Member (2009-)
 - CUORE Collaboration Council Member (2009-)
 - CUORE Data Vetting Committee Member (2009-)
 - Responsible for the design, development and construction of a low-temperature and low-background, energy calibration system for the CUORE bolometric detector array
- Since 2004 **Daya Bay** (θ_{13} Reactor Antineutrino Experiment)
- US Antineutrino Detector Manager (2006-)
 - Elected Executive Board Member (2007-)
 - Institutional Representative (2006-)
 - Responsible for the overall design, assembly, and commissioning of the Daya Bay antineutrino detectors
 - Leads a group of 2 scientists, 2 postdocs, 3 graduate students, several undergraduates, and 8 technical staff people at University of Wisconsin for Daya Bay
 - Responsible for the design and fabrication of the detectors' target vessels and a system for measuring the detectors' target mass to $< 0.1\%$
 - Coordinates the single largest university contribution to the Daya Bay reactor neutrino experiment
- 2002-2009 **KamLAND** (Kamioka Liquid Scintillator Antineutrino Detector)
- Scientific lead and system manager for the KamLAND Full-Volume Calibration System.
 - Responsible for the design, construction, and operation of this calibration system which led to an improvement in KamLAND's fiducial volume uncertainty from 4.7% to 1.8% with a comparable improvement in the uncertainty of the neutrino mass splitting Δm_{12}
 - Participated in the analysis of first KamLAND data for the discovery of reactor antineutrino disappearance

- 1996 – 2004 **SNO** (Sudbury Neutrino Observatory)
- SNO Analysis Coordination Committee Member (2001-2003)
 - Performed a model-independent analysis of the neutral-current interaction rate with Ph.D. thesis advisor R.G.H. Robertson

Awards, Honors, and Fellowships

Department of Energy (DOE) Outstanding Junior Investigator Awards in both High Energy and Nuclear Physics.

- 2009-2011 **Alfred P. Sloan Research Fellow**,
<http://www.sloan.org/fellowships/page/19>
- 2008 **Outstanding Junior Investigator Award**, DOE Office of High Energy Physics,
“Precision Studies of the Reactor Antineutrino Spectrum and the Search for θ_{13} at Daya Bay”
http://www.er.doe.gov/hep/files/pdfs/OJI_ALL_Awards.pdf
- 2008 **Outstanding Junior Investigator Award**, DOE Office of Nuclear Physics,
“Investigation of Neutrino Properties with Bolometric Detectors”
<http://www.sc.doe.gov/np/program/oji.html>
- 2004 **Michelson Postdoctoral Prize Lectureship**
Case Western Reserve University
<http://www.phys.cwru.edu/events/mppl-prior.php>
- 2003 **APS Dissertation Award in Nuclear Physics**
American Physical Society, Division of Nuclear Physics
<http://www.aps.org/praw/dissnucl/03winner.html>

“For his role in generating and analysis of the data from the Sudbury Neutrino Observatory, and the resulting resolution of the solar neutrino problem.”
- 2002-2005 **Chamberlain Fellowship**
Lawrence Berkeley National Laboratory, Physics Division, USA
- 2001 **Member of the Institute of Physics (MInstP)**
Institute of Physics (IOP), London, UK
- 2000 **Mellam Fellowship**
University of Washington, Seattle, Washington, USA
<http://www.mellam.org>

“...selected for this fellowship because of outstanding contributions to research.”
- 2000 **Dahlstrom Prize**
University of Washington, Seattle, Washington, USA

“Prize to an outstanding graduate student in experimental physics who has passed the General Exam.”

- 1996 **Sebastian Karrer Memorial Scholarship**
University of Washington, Seattle, Washington, USA
“The Karrer Memorial Scholarship ... is given to an outstanding student in the first year of graduate study.”
- 1994 – 1995 **Academic Scholarship**
Oxford University, College St. Edmund Hall, England
- 1993 **Academic Exhibition and Bursary**
Oxford University, College St. Edmund Hall, England
- 1992 – 1997 **Stipendiat der Studienstiftung des Deutschen Volkes**
(German National Academic Foundation)
<http://www.studienstiftung.de/>
- 1992 **Lions Club Scholarship** for cultural exchange and travel in South Africa

Teaching

- Fall 2009 **Physics in the Arts - Physics 109**
University of Wisconsin, Instructors: Heeger, Gilbert
- Spring 2009 research semester
- Fall 2008 **Experimental Nuclear Physics – Physics 741**
graduate level course in experimental nuclear physics
University of Wisconsin, Instructor: Heeger
- Spring 2008 **Physics in the Arts - Physics 109**
undergraduate course for non-science students on light and sound
University of Wisconsin, Instructors: Heeger, Balantekin
- Fall 2007 **Physics in the Arts - Physics 109**
undergraduate course for non-science students on light and sound
University of Wisconsin, Instructor: Heeger, Halzen
- Spring 2007 **Physics in the Arts - Physics 109**
undergraduate course for non-science students on light and sound
University of Wisconsin, Instructors: Heeger, Balantekin
- Fall 2006 research semester

Course Development

- coming in Spring 2010 **Experimental Methods in Nuclear-, Particle-, and High-Energy Astrophysics – Physics 736**
graduate level course in experimental techniques, revised and updated particle physics course for a broad group of experimental graduate students
University of Wisconsin, Instructor: Heeger

since 2009 **Development of an online, game-oriented learning tool for the course
Physics in the Arts – Physics 109**
University of Wisconsin – Engage Program: transforming teaching and learning
through technology, <http://engage.doit.wisc.edu/>

Schools, Lectures, other Teaching Activities

Summer 2009 **2009 International Neutrino Summer School**
Fermilab, Batavia, IL, USA, July 6-17, 2009
<http://projects.fnal.gov/nuss/>

Summer 2007 **III. International Pontecorvo Neutrino Physics School,**
Alushta, Crimea, Ukraine, September 16-26, 2007
<http://wwwinfo.jinr.ru/pontecorvo07/>

2004 **Michelson Postdoctoral Prize Lectureship**
Case Western Reserve University, April 26-30, 2004
<http://www.phys.cwru.edu/events/mppl-prior.php>

2003 **AAPT-APS Neutrino Workshop**
Lecturer and Organizer, “*Neutrinos: Ghostlike Particles in the Universe*”,
Berkeley Lab, November 14, 2003
<http://pdg.lbl.gov/aapt-aps/workshop.html>

Fall 2002 **Graduate Course Lectures in Neutrino Physics**
UC Berkeley and LBNL
Instructor: Y. Kolomensky

Fall 1998 **Nuclear Astrophysics – Physics 554**
University of Washington, Graduate Course Teaching Assistant
Instructor: W. Haxton

Fall 1995 **General Physics, Laboratory Instruction and Tutorials**
University of Washington, Undergraduate Course Teaching Assistant
Instructor: Physics Education Group

Teaching Training

Fall 2009 **DELTA Roundtables – Integrating Research, Teaching, and Learning,**
University of Wisconsin
<http://www.delta.wisc.edu/>

June 2007 **STEMES 2007 Workshop - 11th Annual Science, Technology, Engineering,
and Mathematics Education Scholars Program**
June 12-16, 2007, Howard University, DC, USA
<http://cirtl.wceruw.org/STEMES/index.html>

Outreach

Summer 2009 **QuarkNet Summer Program, University of Wisconsin**

- Co-Chair of the Organizing Committee*
Madison, WI, USA, August 31 – September 5, 2009
<http://www.physics.wisc.edu/ndm09/>
- 2009 *CIPANP09: Intersection of Particle and Nuclear Physics,*
Convener for session on “Nuclear and Particle Astrophysics”
San Diego, CA, USA, May 26-31, 2009
<http://groups.physics.umn.edu/cipanp2009>
- 2005 *Neutrino Physics Planning Meeting at PANIC05,*
Member of the Organizing Committee
Santa Fe, NM, USA, October 28-30, 2005
<http://panic05.lanl.gov/index.php?link=satellite>
- 2005 *APS California Section Meeting,*
Member of the Program Committee
Sacramento, CA, USA, October 21-22, 2005
<http://aps-ca.lbl.gov/>
- 2003 *Neutrinos: Ghostlike Particles in the Universe*
APS-AAPT Workshop for Teachers and Students, Co-Organizer
Berkeley, CA, USA, November 14, 2003
<http://pdg.lbl.gov/aapt-aps/workshop.html>
- 2003 *The Future of Physics Education and the Fate of the Universe*
AAPT California-Nevada and APS California Section Meeting,
Member of the Organizing Committee
Berkeley, CA, USA, November 14-15, 2003
<http://pdg.lbl.gov/aapt-aps/>
- 2003 *CAM2003 - Canadian, American, Mexican Graduate Student Conference*
Student Visions for Physics in the 21st Century
Co-Chair of the US Advisory Committee for CAM2003
Merida, Mexico, October 24-27, 2003
<http://www.mda.cinvestav.mx/cam2003>
- 1999 *8th US Symposium of the German National Academic Foundation*
Member of the Local Organizing Committee
Seattle, Washington, USA, 1999

University and Department Service

- 2009-2010 University of Wisconsin, Physics Department
- Strategic Planning Committee
 - New Staff Committee
 - Web Committee
 - Computing & IT Committee
 - Colloquium Committee
- 2008-2009 University of Wisconsin, Physics Department
- Graduate Program Committee
 - Graduate Student Admissions & Fellowships Committee

- Colloquium Committee
- Computing & IT Committee

2007-2008 University of Wisconsin, Physics Department

- Graduate Student Admissions & Fellowships Committee
- Colloquium Committee
- Committee on Introductory Courses, Labs, and Lecture Room
- Physics Library Committee

Advising and Mentoring

Postdoctoral Fellows

- Dr. Samuele Sangiorgio Oct 2007 – Present
- Dr. Wei Wang Jul 2007 – Present

Graduate Students

- Daniel Passmore, University of Wisconsin graduated with M.Sc, June 2007
- thesis: "Precision Measurement of the Target Mass in the Daya Bay Antineutrino Detectors"
- Bryce Littlejohn, University of Wisconsin Jan 2007 – Present
- won 2008 NSF East Asia and Pacific Summer Institute Fellowship
- Larissa Ejzak, University of Wisconsin Jan 2007 – Present
- honorable mention in the 2007 NSF Graduate Fellowship Competition
- Michael McFarlane, University of Wisconsin Jan 2007 – Present
- Christine Lewis, University of Wisconsin May 2008 – Present
- Adam Dally, University of Wisconsin Jun 2008 – Present

Undergraduate Researchers

- Jacob Swan, University of Wisconsin Sep 2009 – Present
- Nitish Chopra, University of Wisconsin Sep 2009 – Present
- Adam Graves, University of Wisconsin Sep 2009 – Present
- Jacqueline Houston, University of Wisconsin Aug 2008 – Aug 2009
- Patrick Mende, University of Wisconsin Sep 2007 – Aug 2009
- won 2007-08 Liebenberg Family Undergraduate Research Scholarship, University of Wisconsin
- invitation to 2008 APS Division of Nuclear Physics Meeting, Conference Experience for Undergraduates (CEU), Oakland, CA
- presentation at 2008 Undergraduate Research Symposium, University of Wisconsin
- now graduate student at Carnegie Mellon University
- Ho Ling Li, University of Wisconsin Sep 2006 – Aug 2008
- oral presentation at 2008 Undergraduate Research Symposium, University of Wisconsin
- poster presentation at 2007 APS Division of Nuclear Physics Meeting, Conference Experience for Undergraduates (CEU), Newport News, VA
- now graduate student at University of Chicago
- Dan Zou, University of Wisconsin Sep 2006 – Aug 2008
- won 2007 Hilldale Undergraduate Research Fellowship, University of Wisconsin

- presentation at 2008 Undergraduate Research Symposium, University of Wisconsin
- now graduate student at University of Chicago
- Jason Ma, California Polytechnic State University, Summer 2004
 - project title: *"Baseline Optimization for a New Reactor Neutrino Experiment to Measure θ_{13} "*
- Brian Perry, California Polytechnic State University, Summer 2003
 - project title: *"Development of a New Calibration System for KamLAND"*
- Steven Furlanetto, Carleton College Summer 1999
 - REU student, University of Washington
 - project title: *"Sensitivity of SNO to Neutrino Oscillation Using Charged-Current Spectrum Data"*
 - now Assistant Professor at UCLA
- Toshiko Asai, University of Washington Summer 1998
 - project title: *"Determination of the Photodisintegration Background from ^{238}U and ^{232}Th in SNO"*
- Lincoln Webbeking, University of Washington Summer 1997
 - project title: *"Microdischarge Studies of Neutral Current Detector Components"*

PhD Exams

- | | |
|-------------------|--|
| May 7, 2008 | Kai Wang, University of Wisconsin, USA
<i>Member of the PhD committee, Advisor: Prof. Tao Han</i> |
| May 11, 2007 | Jessica Hodges, University of Wisconsin, USA
<i>Member of the PhD committee, Advisor: Prof. Albrecht Karle</i> |
| February 23, 2007 | Samuele Sangiorgio, Università dell'Insubria, Como, Italy
<i>External examiner to the PhD committee, Advisor: Prof. Andrea Giuliani</i> |

Languages

- German (native)
- English (fluent)
- French (comprehension)

International Experience

- Conducted research and managed scientific projects in Japan, China, Italy, Canada, and the USA.
- Traveled in Iceland, Ukraine, Japan, China, Hong Kong, Vietnam, South Africa, Canada, USA, Mexico, and Europe.

Other Interests

- Enjoys playing the violin, climbing, and skiing.

Refereed Journal Articles

For a complete list of SPIRES HEP listing see:

<http://www.slac.stanford.edu/spires/find/hep/www?rawcmd=FINN+AUTHOR+HEEGER%2C+K>

32. *The low-temperature energy calibration system for the CUORE bolometer array*

S. Sangiorgio, L.M. Ejzak, K.M. Heeger, R.H. Maruyama, A. Nucciotti, M. Olcese, T.S. Wise, A.L. Woodcraft, Submitted to LTD13, arXiv:0908.0167 (2009)

31. *Study of the Production of Radioactive Isotopes through Cosmic Muon Spallation in KamLAND*

S. Abe et al. (KamLAND Collaboration), Submitted to Phys. Rev. C, arXiv:0907.0066 (2009)

32. *UV Degradation of the Optical Properties of Acrylic for Neutrino and Dark Matter Experiments*

B. Littlejohn, K.M. Heeger, T. Wise, E. Gettrust, and M. Lyman, Accepted by JINST, arXiv:0907.3706 (2009)

29. *The KamLAND Full-Volume Calibration System*

B.E. Berger et al. (KamLAND Collaboration), JINST 4:P04017 (2009)

28. *Measurement of the Cosmic Ray and Neutrino-Induced Muon Flux at the Sudbury Neutrino Observatory*

B. Aharmim, et al. (SNO Collaboration), Phys.Rev.D80:012001 (2009)

27. *Independent Measurement of the Total Active $8B$ Solar Neutrino Flux Using an Array of 3He Proportional Counters at the Sudbury Neutrino Observatory,*

B. Aharmim, et al. (SNO Collaboration), Phys. Rev. Lett. 101, 111301 (2008).

26. *Precision Measurements of Neutrino Oscillation Parameters with KamLAND*

S. Abe et al. (KamLAND Collaboration), Phys. Rev. Lett. 100, 221803 (2008).

25. *An array of low-background 3He proportional counters for the Sudbury Neutrino Observatory*

J.F. Amsbaugh et al.

Nucl.Instrum.Meth.A579:1054-1080, (2007)

24. *Determination of the ν_e and total 8B solar neutrino fluxes using the Sudbury Neutrino Observatory Phase I data set.*

B. Aharmim et al. (SNO Collaboration)

Phys. Rev. C 75, 045502 (2007)

23. *A Search for Neutrinos from the Solar hep Reaction and the Diffuse Supernova Neutrino Background with the Sudbury Neutrino Observatory*

B. Aharmim et al. (SNO Collaboration)

Astrophys.J.653:1545-1551 (2006)

22. *Search for the Invisible Decay of Neutrons with KamLAND*

T. Araki et al. (KamLAND Collaboration)

Phys.Rev.Lett.96:101802, (2006)

21. *Experimental Investigation of Geologically Produced Antineutrinos with KamLAND*

T. Araki et al. (KamLAND Collaboration)

Nature 436:499-503, (2005)

20. *A Search for Periodicities in the ^8B Solar Neutrino Flux Measured by the Sudbury Neutrino Observatory*
B. Aharmin et al. (SNO Collaboration)
Phys.Rev.D72:052010 (2005)
19. *Electron Energy Spectra, Fluxes, and Day-Night Asymmetries of B-8 Solar Neutrinos from Measurements with NaCl dissolved in the Heavy-Water Setector at the Sudbury Neutrino Observatory*
B. Aharmin et al. (SNO Collaboration)
Phys.Rev.C72:055502,2005. 45pp (2005)
18. *Measurement of Neutrino Oscillation with KamLAND: Evidence of Spectral Distortion,*
T. Araki et al. (KamLAND Collaboration)
Phys.Rev.Lett.94:081801, 1-5, (2005)
17. *Electron Antineutrino Search at the Sudbury Neutrino Observatory*
B. Aharmin et al. (SNO Collaboration)
Phys.Rev.D70:093014,1-7 (2004)
16. *A High-Sensitivity Search for Electron Antineutrinos from the Sun and Other Sources at KamLAND,*
K. Eguchi et al. (KamLAND Collaboration)
Phys.Rev.Lett.92:071301,1-5 (2004)
15. *Constraints on Nucleon Decay via "Invisible" Modes from the Sudbury Neutrino Observatory,*
S.N. Ahmed et al. (SNO Collaboration),
Phys.Rev.Lett.92:102004,1-4 (2004)
14. *Measurement of the Total Active ^8B Solar Neutrino Flux at the Sudbury Neutrino Observatory with Enhanced Neutral Current Sensitivity,*
S.N. Ahmed et al. (SNO Collaboration)
Phys.Rev.Lett.92:181301,1-5 (2004)
13. *First Results from KamLAND: Evidence for Reactor Antineutrino Disappearance,*
K. Eguchi et al. (KamLAND Collaboration)
Phys.Rev.Lett.90:021802,1-6 (2003), LBNL-5193
12. *Constraining the Leading Weak Axial Two Body Current By SNO and Super-Kamiokande,*
J.W Chen, K.M. Heeger, and R.G.H. Robertson
Phys.Rev.C67:025801, 8pp (2003), LBNL-52174
11. *Measurement of Day and Night Neutrino Energy Spectra at SNO and Constraints on Neutrino Mixing Parameters,*
Q.R. Ahmad et al. (SNO Collaboration)
Phys.Rev.Lett.89:011302, 5pp (2002)
10. *Direct Evidence for Neutrino Flavor Transformation from Neutral Current Interactions in the Sudbury Neutrino Observatory,*
Q.R. Ahmad et al. (SNO Collaboration)
Phys.Rev.Lett.89:011301, 6pp (2002)
9. *Resolving the Solar Neutrino Problem: Evidence for Massive Neutrinos in the Sudbury Neutrino Observatory,*
K.M. Heeger
Europhysics News, vol. 32, no. 5, pp. 180-183 (2001)

8. *Measurement of the Rate of $\nu_e + d \rightarrow p + p + e^-$ Interactions produced by ^8B Solar Neutrinos at the Sudbury Neutrino Observatory,*

Q.R. Ahmad et al. (SNO Collaboration)

Phys.Rev.Lett.87:071301, 6pp (2001)

7. *The Sudbury Neutrino Observatory,*

J. Boger et al. (SNO Collaboration)

Nucl.Instrum.Meth.A449:172-207 (2000)

6. *High-Voltage Microdischarge in Ultra-Low-Background ^3He Proportional Counters,*

K.M. Heeger, S.R. Elliott, R.G.H. Robertson, M.W.E. Smith, T.D. Steiger, J.F. Wilkerson

IEEE Trans.Nucl.Sci. 47:1829-1833 (2000)

5. *Low-background ^3He Proportional Counters for Use in the Sudbury Neutrino Observatory,*

M.C. Browne et al.

IEEE Trans.Nucl.Sci.46:873-876 (1999)

4. *Solar Fusion Cross-Sections,*

E. Adelberger et al.

Rev.Mod.Phys.70:1265-1292 (1998)

3. *Probability of a Solution to the Solar Neutrino Problem Within the Minimal Standard Model,*

K.M. Heeger and R.G.H. Robertson

Phys.Rev.Lett.77:3720-3723 (1996)

2. *Ground State Properties of Exotic Si, S, Ar, Ca Isotopes,*

T.R. Werner, J.A. Sheik, M. Misu, W. Nazarewicz, J. Rikowska, K.M. Heeger, A.S. Umar,

und M. R. Strayer

Nuclear Physics A, vol. A587, no. 3, pp. 327-340 (1996)

1. *Determination of the C_{60}/C_{70} Ratio in Fullerene Thin Films as a Function of the Sublimation Distance and the Substrate Temperature using Scanning Tunneling Microscopy,*

H.-P. Lang, K.M. Heeger, V. Thommen-Geisser, and H.J. Güntherodt

Philosophical Magazine B, vol. 70, no.3, pp. 721-30 (1993)

Books & Book Chapters

1. *Neutrino Oscillation Physics with KamLAND: Reactor Antineutrinos and Beyond,*

K.M Heeger, chapter in review book on neutrino oscillations by World Scientific, edited by J. Thomas and

T. Vahle. World Scientific 2008

Conference Proceedings

7. *Reactor neutrino oscillation experiments: recent results and future prospects*

K.M. Heeger,

J. Phys.: Conf. Ser. 120 052005 (2008)

6. *Evidence for Neutrino Mass: A Decade of Discovery*

K.M. Heeger

Proceedings to "Seesaw25 - International Conference on the Seesaw Mechanism",

Paris, France, June 10-11, 2004,

e-print arXive: hep-ex/0412032, LBNL-56717, 16pp (2004)

5. *Towards a Precision Measurement of θ_{13} with Reactor Neutrinos: Initiatives in the United States*,
K.M. Heeger,

Proceedings to "5th Workshop on Neutrino Oscillations and their Origin (NOON04)",
Odaiba, Tokyo, Japan, February 11-15, 2004, LBNL-56338, 8pp (2004)

4. *Measuring θ_{13} with Reactor Neutrinos*,

K.M. Heeger, S.J. Freedman, R.W. Kadel, and K.-B. Luk

Proceedings to 8th International Workshop on Topics in Astroparticle and Underground Physics (TAUP
2003), Seattle, Washington, 5-9 Sep 2003, LBNL-55942, 3pp (2004)

3. *The Future of Reactor Neutrino Experiments: A Novel Approach to Measuring θ_{13}* ,

K.M. Heeger, S.J. Freedman, and K.-B. Luk

AIP Conf.Proc.698:303-306 (2004), LBNL-55935

2. *Background Studies for the Neutral Current Detector Array in the Sudbury Neutrino Observatory*,

K.M. Heeger, P.J. Doe, S.R. Elliott, R.G.H. Robertson, M.W.E. Smith, T.D. Steiger, J.F. Wilkerson

Nucl.Phys.Proc.Suppl.87:502-503 (2000)

1. *A Model Independent Analysis of the Solar Neutrino Anomaly*,

K.M. Heeger and R.G.H. Robertson

Prog.Part.Nucl.Phys.40:135-136 (1998)

Technical Design Reports, Proposals, and Letters of Intent

6. *Daya Bay Project - Technical Design Report*

X. Guo et al. (Daya Bay Collaboration)

<http://dayabay.bnl.gov/private/documents/cdr/> 353pp (2007)

5. *A Precision Measurement of the Neutrino Mixing Angle θ_{13} using Reactor Antineutrinos at Daya Bay*

X. Guo et al. (Daya Bay Collaboration)

e-print arXive: hep-ex/0701029 156pp (2007)

4. *Proposal for an Experimental Program in Neutrino Physics and Proton Decay in the Homestake
Laboratory*

M. Diwan et al.

e-print arXive: hep-ex/0608023, 47pp (2006)

3. *White Paper Report on Using Nuclear Reactors to Search for a Value of θ_{13}*

K. Anderson et al. (International θ_{13} Working Group)

e-print arXive: hep-ex/0402041, 167pp (2004)

2. *Letter of Intent for a Neutrino Oscillation Experiment at JHF*

Y. Hayati et al.

<http://neutrino.kek.jp/jhfnu/loi/loi.v2.030528.pdf>, 24pp (2003)

1. *Letter of Intent to Build an Off-Axis Detector to Study $\nu_{\mu} \rightarrow \nu_e$ Oscillations with the NuMI Neutrino Beam*

D. Ayres et al.

e-print arXive: hep-ex/0210005, 111pp (2002)

Popular Science Articles

1. *Big World of Small Neutrinos* (in *Particle Physics in Plain English*)
K.M. Heeger
Lepton-Photon 2003,
LBNL-53540, <http://conferences.fnal.gov/lp2003/forthepublic/>

Committee Reports

3. *Report of the APS Neutrino Study Reactor Working Group*
E. Abouzaid et al.,
October 2004, LBNL- 56599, 53pp, <http://www.aps.org/neutrino/>

2. *APS Neutrino Study - Report of the Solar and Atmospheric Neutrino Working Group*
H. Back et al.,
October 2004, LBNL-56613, <http://www.aps.org/neutrino/>
e-print arXive: hep-ex/0412016, 70pp

1. *Neutrino Science at LBNL: Present Program and Future Options*
R.N. Cahn et al. (LBNL Neutrino Working Group),
March 2003, LBNL-52410, 53pp

Invited Conference Talks

[29. *Understanding Neutrino Mixing with Non-Accelerator Experiments*]
APS April/AAPT Meeting 2010
Washington, DC, USA, February 13-17, 2010

[28. *Reactor Neutrino Experiments: Recent Results and Future Prospects*]
CTP International Conference on Neutrino Physics in the LHC Era,
Luxor, Egypt, November 15-19, 2009

[27. *Understanding Neutrino Mass and Mixing with Low-Energy Experiments*]
Inaugural Fall Meeting of the APS Prairie Section
Iowa City, Iowa, November 12-14, 2009

26. *A High-Precision Measurement of θ_{13} with the Daya Bay Reactor Neutrino Experiment*
TAUP 2009, International Conference on Topics in Astroparticle and Underground Physics
Laboratori, Nazionali del Gran Sasso, Italy, July 1-5, 2009

25. *Understanding Neutrino Mass and Mixing with Low-Energy Experiments*
4th International Symposium on Symmetries in Subatomic Physics
Taipei, Taiwan, June 2-5, 2009

24. *Antineutrino Detectors for a High-Precision Measurement of the Neutrino Mixing Angle θ_{13} at Daya Bay*
TIPP09, Technology and Instrumentation in Particle Physics
Tsukuba, Japan, March 12-17, 2009

23. *Precision Measurements of Neutrino Oscillation Parameters with Reactor Neutrinos*
Les Recontres de Physique de la Valee d'Aoste

La Thuile, Aosta Valley, Italy, March 1-7, 2009

22. Reactor Neutrino Experiments: Recent Results and Future Prospects

TAUP 2007, International Conference on Topics in Astroparticle and Underground Physics
Sendai, Japan, September 11-15, 2007

21. Search for the Neutrino Mixing Angle θ_{13}

APS April Meeting
Jacksonville, FL, USA, April 14-17, 2007

20. Future Reactor Neutrino Experiments to Measure $\sin^2 2\theta_{13}$

Workshop on Next Generation Nucleon Decay and Neutrino Detectors 2006
Seattle, WA, USA, September 21-23, 2006

19. Evidence of New Physics in Reactor and Solar Neutrino Experiments

VietNam 2006 6th Rencontres du Vietnam
Hanoi, Vietnam, August 6 - 12, 2006

18. Future θ_{13} Reactor Experiments

Neutrino 2006
Santa Fe, NM, USA, June 13-19, 2006

17. Measuring $\sin^2 2\theta_{13}$ with Reactor Antineutrinos

US-Japan Seminar on "Double Beta Decay and Neutrino Mass",
2nd Joint Meeting of the Nuclear Physics Divisions of the APS and The Physical Society of Japan
Maui, HI, USA, September 17-20, 2005

*16. Measuring $\sin^2 2\theta_{13}$ with Reactor Antineutrinos at Daya Bay – An Underground Laboratory for a
Multidetector Experiment*

Workshop on Exploring the Physics Frontier at the Deep Underground Laboratories,
Seattle, WA, USA, June 23-24, 2005

15. Experimental Evidence for Neutrino Mass

SeeSaw25, International Conference on Seesaw Mechanism
Paris, France, June 10-11, 2004

14. Recent Discoveries in Neutrino Oscillation Physics & Prospects for the Future

Opening Talk at the German Physical Society Meeting
Mainz, Germany, March 29 - April 1, 2004

13. The Case for a Reactor Neutrino Disappearance Experiment to Measure θ_{13}

Workshop on Future Low-Energy Neutrino Experiments
Niigata, Japan, March 20, 2004

12. Results from KamLAND and Future Reactor Neutrino Experiments

Les Rencontres de Physique de la Vallée d'Aosta,
La Thuile, France, February 29- March 6, 2004

11. Towards a Precision Measurement of θ_{13} with Reactor Neutrinos in the US

NOON2004, Workshop on Neutrino Oscillation and their Origin
Tokyo, Japan, February 11-15, 2004

10. A Reactor Neutrino Experiment at Diablo Canyon

Workshop on Future Low-Energy Neutrino Experiments
Munich, Germany, October 9-11, 2003

9. *Reactor Neutrino Experiments: KamLAND and Diablo Canyon*
Institute for Nuclear Particle Astrophysics and Cosmology (INPAC Meeting)
San Diego, October 3-5, 2003

8. *The Future of Reactor Neutrino Oscillation Experiments*
Yamada Symposium on Neutrinos and Dark Matter in Nuclear Physics (NDM03)
Nara, Japan, June 9-14, 2003

7. *Reactor Neutrino Measurement of θ_{13}*
Conference on the Intersections of Particle and Nuclear Physics
New York, NY, USA, May 19-24, 2003

6. *APS DNP Dissertation Award in Nuclear Physics Prize Talk:
Evidence for Neutrino Oscillations from SNO and KamLAND*
APS April Meeting
Philadelphia, USA, April 5-8, 2003

5. *The Resolution to the Solar Neutrino Problem: Model-Independent Evidence for Neutrino Flavor
Change at SNO*
XXXVIIIth Rencontres de Moriond: Electroweak Interactions and Unified Theories
Les Arcs, France, March 15-22, 2003

4. *Evidence for Neutrino Oscillations from SNO and KamLAND*
KITP Conference on "Neutrinos: Data, Cosmos, and Planck Scale"
Santa Barbara, USA, March 3-7, 2003

3. *Oscillation Measurements in the Solar Δm^2 Region Including KamLAND*
International Workshop on Neutrinos and Subterranean Science,
Washington, DC, USA, September 18-21, 2002

2. *Solar Neutrino Detection in KamLAND*
International Workshop on Neutrinos and Subterranean Science,
Washington, DC, USA, September 18-21, 2002

1. *First Results from the Sudbury Neutrino Observatory (SNO)*,
Euroconference on Neutrino Masses and Mixing
Les Houches, France, June 17-21, 2001

Contributed Conference Presentations

25. *Physics Potential of the Daya Bay Experiment*
Third Joint Meeting of the Nuclear Physics Divisions of the American Physical Society and The Physical
Society of Japan
Hawaii, HI, USA, October 13-17, 2009

24. *Energy Calibration of the CUORE Experiment*
Japan-US seminar on Double Beta Decay and Neutrinos,
Hawaii, HI, USA, October 11-13, 2009

23. *Design, Simulation, and Performance of the Daya Bay Antineutrino Detectors*
APS April Meeting,
Denver, CO, USA, May 2-5, 2009

22. *A Low-Temperature Calibration System for the CUORE Bolometric Double Beta-Decay Experiment*
APS Meeting of the Division of Nuclear Physics (2008)
Oakland, CA, October 26, 2008

21. *A High-Precision Measurement of $\sin^2 2\theta_{13}$ with the Daya Bay Reactor Neutrino Experiment*
Division of Nuclear Physics Town Meeting for the NSAC Long Range Plan
Chicago, IL, January 20, 2007

20. *Measuring $\sin^2 2\theta_{13}$ with Reactor Antineutrinos at Daya Bay*
APS Meeting of the Division of Nuclear Physics (2006)
Nashville, TN, October 23, 2006

19. *Measuring $\sin^2 2\theta_{13}$ with Reactor Antineutrinos at Daya Bay*
Joint APS/JPS Meeting of the Division of Nuclear Physics (2005)
Maui, HI, September 25-28, 2005

18. *Full-Volume Calibration of KamLAND and Precision Measurement of Oscillation Parameters*
Joint APS/JPS Meeting of the Division of Nuclear Physics (2005)
Maui, HI, September 17-22, 2005

17. *Full-Volume Calibration in KamLAND*
APS Division of Nuclear Physics, Bulletin of the American Physical Society vol. 49, No.6 (2004)
Chicago, IL, October 27-30, 2004

16. *Measuring θ_{13} in a Reactor Neutrino Oscillation Experiment*
APS April Meeting, Bulletin of the American Physical Society vol. 49, No.2 (2004)
Denver, CO, USA, May 1, 2004

15. *Measuring θ_{13} with Reactors*
APS Division of Nuclear Physics, Bulletin of the American Physical Society vol. 48, No.8 (2003)
Tucson, AZ, USA, October 31, 2003

14. *Reactor Neutrino Measurement of θ_{13}*
TAUP 2003 - Topics in Astroparticle and Underground Physics
Seattle, WA, USA, September 5-8, 2003

13. *Reactor Neutrino Measurement of θ_{13}*
Lepton Photon Conference (poster)
Fermilab, IL, USA, August 11-8, 2003

12. *Measuring the Neutrino Interaction Rates in SNO for Variable Fiducial Volumes*
APS April Meeting, Bulletin of the American Physical Society vol. 48, No.2 (2003)
Albuquerque, NM, USA, April 20-23, 2002

11. *Determination of the Charged-Current Rate and Energy Scale in SNO by Means of a Calibration Source-Independent Analysis of the Energy Spectrum*
APS Division of Nuclear Physics, Bulletin of the American Physical Society vol. 46, no.7 (2001)
Maui, Hawaii, USA, October 17-20, 2001

10. *Neutral-Current Detection in the Sudbury Neutrino Observatory Using Ultra-Low-Background ^3He Proportional Counters*,
EuroConference on Neutrinos in the Universe: Frontiers in Astroparticle Physics and Cosmology
Lenggries, Germany, September 30, 2001
9. *Background Studies for the Neutral Current Detector Array in SNO*,
APS Division of Nuclear Physics, Bulletin of the American Physical Society vol. 45, No.5 (2000)
Williamsburg, VA, USA, October 4-7, 2000
8. *High-Voltage Microdischarge in Ultra-Low-Background ^3He Proportional Counters*,
IEEE Nuclear Science Symposium
Seattle, Washington, USA, October 24-30, 1999
7. *Background Studies for the Neutral Current Detector Array in SNO*,
TAUP99 - Topics in Astroparticle and Underground Physics
Paris, France, September 5-10, 1999
6. *Neutral Current Detection in the Sudbury Neutrino Observatory*,
National Nuclear Physics Summer School, UCSD
San Diego, California, USA, June 28-July 9, 1999
5. *Model-Independent Constraints on Neutrino Mixing from Solar Neutrinos*,
APS Centennial Meeting, Bulletin of the American Physical Society 44, 1307 (1999)
Atlanta, Georgia, USA, March 20-26, 1999
4. *In Situ Determination of Backgrounds from Neutral Current Detectors in the Sudbury Neutrino Observatory*,
APS Division of Nuclear Physics, Bulletin of the American Physical Society 43, 1549 (1999)
Santa Fe, New Mexico, USA, October 28-31, 1998
3. *A Model Independent Analysis of the Solar Neutrino Anomaly*,
International School of Nuclear Physics, 19th Course
Erice, Sicily, 16-24 September, 1997
2. *Model-Independent Analysis of the Solar Neutrino Anomaly*,
APS Division of Nuclear Physics, Bulletin of the American Physical Society 42, 1679 (1997)
Whistler, BC, Canada, October 5-8, 1997
1. *The Energy Spectrum of ^8B Neutrinos and the Solar Neutrino Problem*,
APS Division of Nuclear Physics, Bulletin of the American Physical Society 42, 1639 (1997)
Whistler, BC, Canada, October 5-8, 1997

Recent Colloquia and Seminars

- [47. Indiana University Cyclotron Facility, December 11, 2009 (seminar)]
- 46. Columbia University, New York, NY, USA, February 16, 2009 (colloquium)
- 45. Technical University Munich (TUM), Munich, Germany, February 2, 2009 (colloquium)
- 44. Illinois Institute of Technology, Chicago, IL, USA, December 4, 2008 (colloquium)
- 43. Argonne National Laboratory, Physics Division, Chicago, IL, USA, May 23, 2008 (colloquium)
- 42. California Institute of Technology, Pasadena, CA, USA, February 7, 2008 (colloquium)
- 41. University of Wisconsin, Madison, WI, USA, February 5, 2008 (undergraduate colloquium)
- 40. University of Chicago, Enrico Fermi Institute, IL, USA, June 4, 2007 (seminar)
- 39. University of Wisconsin, Madison, WI, USA, April 24, 2007 (undergraduate colloquium)
- 38. Illinois Institute of Technology, Chicago, IL, USA, April 19, 2007 (colloquium)
- 37. Argonne National Laboratory, Physics Division, Chicago, IL, USA, December 11, 2006 (seminar)
- 36. University of Illinois Urbana-Champaign, Urbana, IL, USA, September 13, 2006 (seminar)
- 35. Harvard University, Cambridge, MA, March 14, 2006 (colloquium)
- 34. Lawrence Berkeley National Laboratory, Berkeley, CA, USA, February 23, 2006 (colloquium)
- 33. University of Washington, Seattle, WA, USA, February 2, 2006 (colloquium)
- 32. University of Wisconsin-Madison, Madison, WI, January 23, 2006 (seminar)
- 31. UC Berkeley, CA, USA, November 30, 2005 (seminar)
- 30. German National Academic Foundation, Berlin, Germany, September 2, 2005 (seminar)
- 29. SLAC, Menlo Park, CA, USA, July 7, 2005 (seminar)
- 28. University of Maryland, College Park, MD, USA, March 7, 2005 (seminar)
- 27. University of North Carolina at Chapel Hill, NC, USA, February 28, 2005 (colloquium)
- 26. Massachusetts Institute of Technology, Boston, MA, USA, February 11, 2005 (colloquium)
- 25. California Institute of Technology, Pasadena, CA, USA, January 18, 2005 (seminar)
- 24. University of Washington, Seattle, WA, USA, January 10, 2005 (colloquium)
- 23. Lawrence Berkeley National Laboratory, Nuclear Physics Forum, USA, December 16, 2004 (seminar)
- 22. Max-Planck Institute for Nuclear Physics, Heidelberg, Germany, November 25, 2004 (colloquium)

21. CENPA, University of Washington, Seattle, WA, USA, May 18, 2004 (seminar)
20. Case Western Reserve University, Cleveland, OH, USA, April 28, 2004 (colloquium)
19. Los Alamos National Laboratory, T-Division, Los Alamos, NM, USA, April 6, 2004 (seminar)
18. California Institute of Technology, Pasadena, CA, USA, December 5, 2003 (seminar)
17. Kansas State University, Manhattan, KS, USA, October 22, 2003 (colloquium)
16. San Luis Obispo Polytechnic State University, CA, USA, July 18, 2003, (seminar)
15. Harvard University, Cambridge, MA, USA, April 2, 2003 (colloquium)
14. John Hopkins University, Baltimore, MD, USA, February 28, 2003 (colloquium)
13. Laboratoire d'Annecy-le-Vieux de Physique des Particules (LAPP), Annecy, France
February 7, 2003 (colloquium)
12. Institute de Sciences Nucleaire (ISN), Grenoble, France, February 6, 2003 (colloquium)
11. Los Alamos National Laboratory, P-25, Los Alamos, NM, USA, January 6, 2003 (seminar)
10. University of Mainz, Mainz, Germany, June 5, 2002 (colloquium)
9. University of Wuppertal, Wuppertal, Germany, June 4, 2002 (colloquium)
8. University of Washington, Seattle, WA, USA, April 25, 2002 (colloquium)
7. University of Oregon, Eugene, OR, USA, January 14, 2002 (seminar)
6. University of Heidelberg, Particle Physics Seminar, December 4, 2001 (seminar)
5. University of Heidelberg, Philosophisches Kolloquium, November 30, 2001 (colloquium)
4. Forschungszentrum Karlsruhe, November 29, 2001 (seminar)
3. University of Illinois at Urbana-Champaign, IL, USA, November 14, 2001 (seminar)
2. Los Alamos National Laboratory, P-23, Los Alamos, NM, USA, November 6, 2001 (seminar)
1. Laboratoire d'Annecy-le-Vieux de Physique des Particules (LAPP), Annecy, France
June 22, 2001 (colloquium)

Employers

Since 2006

University of Wisconsin
Physics Department
1150 University Ave, Chamberlin Hall
Madison, WI 53706, USA

Phone: 608-262-4526

Fax: 608-262-3077

<http://www.physics.wisc.edu/>

2002-2006

Lawrence Berkeley National Laboratory
Physics Division
1 Cyclotron Rd. M/S 50-4049,
Berkeley, CA 94720, USA

Phone: 510-486-5421

Fax: 510-486-6003

<http://www-physics.lbl.gov/div-office/list-of-contacts.html>

1996-2002

University of Washington,
Department of Physics,
Center for Nuclear Physics and Astrophysics
Box 351560,
Seattle, WA 98195-1560, USA

Phone: 206-543-2770

Fax: 206-685-0635

<http://www.phys.washington.edu/>