

Daniel Hellfeld

CONTACT INFORMATION	4126 Etcheverry Hall University of California, Berkeley Berkeley, CA 94720	949.680.9345 dhellfeld@berkeley.edu hellfeld1@llnl.gov dhellfeld.github.io linkedin.com/in/dhellfeld
OBJECTIVE	To conduct scientific research in the field of nuclear engineering, specifically in the areas of radiation detection and nuclear nonproliferation.	
EDUCATION	Doctor of Philosophy (PhD) , Nuclear Engineering <i>University of California, Berkeley</i> ◦ Cumulative GPA: 4.0. ◦ Member of the Nuclear Science and Security Consortium (NSSC).	Aug 2015 - Present <i>Berkeley, CA</i>
	Master of Science (MS) , Nuclear Engineering <i>Texas A&M University</i> ◦ Cumulative GPA: 4.0. ◦ Member of the Nuclear Security Science and Policy Institute (NSSPI). ◦ Thesis Title: <i>Feasibility of Remote Nuclear Reactor Antineutrino Directionality via Elastic Electron Scattering in the WATER Cherenkov Monitor of ANTineutrinos (WATCHMAN)</i> .	Aug 2013 - May 2015 <i>College Station, TX</i>
	Bachelor of Science (BS) , Physics <i>University of California, Santa Barbara</i> ◦ Cumulative GPA: 3.87. ◦ Graduated <i>Summa Cum Laude</i> .	Sep 2009 - June 2013 <i>Santa Barbara, CA</i>
	NSSC Graduate Research Fellow <i>Nuclear Science and Security Consortium</i> <i>University of California, Berkeley</i> ◦ Perform research in collaboration with UC Berkeley and Lawrence Livermore National Laboratory in the areas of radiation detection and nuclear security/safeguards.	Aug 2015 - Present <i>Berkeley, CA</i>
	Graduate Student Intern <i>Lawrence Livermore National Laboratory</i> Nuclear and Chemical Sciences Division, Rare Event Detection Group ◦ Performed GEANT4 simulations and analysis for the WATCHMAN project. ◦ Completed and submitted a paper to a peer reviewed physics journal on nuclear reactor antineutrino directional sensitivity of water Cherenkov detectors.	June 2015 - July 2015 <i>Livermore, CA</i>
RESEARCH EXPERIENCE	NSSC Graduate Research Fellow <i>Nuclear Science and Security Consortium</i> <i>University of California, Berkeley</i> ◦ Performed master's thesis research on antineutrino detection for nuclear safeguards in collaboration with Lawrence Livermore National Laboratory.	Nov 2014 - May 2015 <i>Berkeley, CA</i>
	Graduate Research Assistant <i>Texas A&M University</i> Department of Nuclear Engineering ◦ Performed various research tasks in the fields of nuclear security and radiation detection instrumentation development. ◦ Assisted in the teaching and grading associated with the graduate radiation detection laboratory course.	Sep 2013 - Nov 2014 <i>College Station, TX</i>

	Graduate Student Intern <i>Lawrence Livermore National Laboratory</i> Nuclear and Chemical Sciences Division, Rare Event Detection Group	June 2014 - Aug 2014 <i>Livermore, CA</i>
	<ul style="list-style-type: none"> o Performed simulations on the proposed WATER CHerenkov Monitor of AntiNeutrinos (WATCHMAN) detector using the Monte Carlo particle transport toolkit, GEANT4. o Studied the feasibility of nuclear reactor directionality using antineutrino-electron elastic scattering in the WATCHMAN detector. 	
SCIENTIFIC COMPUTING SKILLS	Languages: Mathematical Software: Monte Carlo Particle Transport Software: Gamma Spectroscopy Software: Nuclear Burnup Software: Build Systems: Operating Systems: Version Control: Other Software:	C++, C, Python, bash ROOT, Mathematica, Matlab MCNP5/MCNPX, GEANT4, Serpent GENIE-2000, MAESTRO ORIGEN2, CINDER-90, TransLAT Make, CMake Mac, Linux, MS Windows git, svn MS Office, L ^A T _E X
PROFESSIONAL SOCIETY MEMBERSHIPS	Institute of Nuclear Materials Management American Nuclear Society National Society of Collegiate Scholars Golden Key International Honor Society	2014 - Present 2013 - Present 2009 - 2013 2009 - 2013
AWARDS	Nuclear Science and Security Consortium Fellowship , UC Berkeley JD Williams Best Poster Award , INMM 56 th Annual Meeting Nuclear Science and Security Consortium Fellowship , UC Berkeley Graduate Enhancement Fellowship , Texas A&M University Highest Academic Honor Award , UC Santa Barbara, Physics Dept.	Aug 2015 July 2015 Nov 2014 Aug 2013 May 2013
WORKSHOPS & SEMINARS	Applied Antineutrino Physics Workshop Center for Neutrino Physics, Virginia Tech University Public Policy and Nuclear Threats Summer Boot Camp Institute on Global Conflict and Cooperation, UC San Diego Nuclear Safety in the Post-Fukushima Era Tokyo Institute of Technology NDA Fundamentals for Nuclear Safeguards Oak Ridge National Laboratory	December 2015 <i>Arlington, CA</i> June 2015 <i>San Diego, CA</i> Feb 2015 <i>Tokyo, Japan</i> Nov 2014 <i>Oak Ridge, TN</i>
CERTIFICATIONS	General Radiation Safety Training Environmental Health and Safety Office, Texas A&M University	Feb 2014 <i>College Station, TX</i>
CONFERENCE PROCEEDINGS	D. Hellfeld, A. Bernstein, S. Dazeley, C. Marianno, in: Proceedings of the 56 th Institute of Nuclear Materials Management Annual Meeting, “Nuclear Reactor Antineutrino Directionality via Elastic Electron Scattering in a Gd-Doped Water Cherenkov Detector”, Indian Wells, CA, 2015.	
PUBLICATIONS	[1] D. Hellfeld, S. Dazeley, A. Bernstein, C. Marianno, “Reconstructing the Direction of Reactor Antineutrinos via Electron Scattering in Gd-Doped Water Cherenkov Detectors”, Submitted to Physical Review D (2015). [2] D. Hellfeld, C. Marianno, W. Charlton, R. Webb, “Feasibility of Nuclear Reactor Antineutrino Directionality via Elastic Electron Scattering in the WATER CHerenkov	

Monitor of ANTineutrinos (WATCHMAN)”, Master’s Thesis, Texas A&M University, 2015.

- [3] M. Askins, M. Bergevin, A. Bernstein, S. Dazeley, S. T. Dye, T. Handler, A. Hatzikoutelis, D. Hellfeld, P. Jaffke, Y. Kamyshkov, B. J. Land, J. G. Learned, P. Marleau, C. Mauger, G. D. Orebi Gann, C. Roecker, S. D. Rountree, T. M. Shokair, M. B. Smy, R. Svoboda, M. Sweany, M. R. Vagins, K. A. van Bibber, R. B. Vogelaar, M. J. Wetstein, M. Yeh, “The Physics and Nuclear Nonproliferation Goals of WATCHMAN: A WATer CHerenkov Monitor for ANTineutrinos”, arXiv:1502.01132 (2015).

RELEVANT COURSEWORK

University of California, Berkeley

- Nuclear Reactor Theory (NE250)
- Nuclear Reactions and Radiation (NE101)
- Nuclear Materials (NE120)

Texas A&M University

- Radiation Interactions and Shielding (NUEN604)
- Radiation Detection and Nuclear Materials Measurement (NUEN605)
- Reactor Theory (NUEN601)
- Nuclear Fuel Cycles and Nuclear Materials Safeguards (NUEN 651)
- Nuclear Reactor Analysis and Experimentation (NUEN606)
- Nuclear Nonproliferation and Arms Control (NUEN650)
- Monte Carlo Computational Particle Transport (NUEN630)
- Special Topics: Introduction to GEANT4 Monte Carlo Transport (NUEN689)
- Statistical Analysis (STAT601)

University of California, Santa Barbara

- Classical Mechanics (PHYS105A/105B)
- Electromagnetism (PHYS110A/110B)
- Quantum Mechanics (PHYS115A/115B/115C)
- Mathematical Methods for Theoretical Physics (PHYS100A/100B)
- Thermodynamic and Statistical Physics (PHYS119A)
- Particle Physics (PHYS125)
- Analog Electronics (PHYS127AL)
- Advanced Physics Laboratory (PHYS128AL/128BL)
- Nuclear Physics (PHYS150)
- Differential Equations and Linear Algebra (MATH3C/5A)
- Vector Calculus (MATH5B/5C)

REFERENCES

Available upon request.