PUBLIC POLICY AND NUCLEAR THREATS

BOOT CAMP 2015

PARTICIPANTS

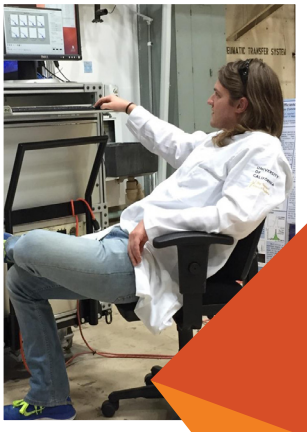
As you progress through the boot camp we hope that you build strong connections with your peers. Getting to know them is a great place to start.

Listed below is the 2015 Cohort for the Public Policy and Nuclear Threats Boot Camp. Coming from a variety of backgrounds and research fields, this year's cohort builds upon the rich tradition of bringing together students and professionals for a meaningful and educational experience here at PPNT.

ALEXANDRA **ASGHARI**

Alexandra (Sasha) Asghari is currently a graduate student at UC Berkeley pursuing a PhD in Nuclear Engineering with an emphasis on radiation detection and nuclear nonproliferation. She graduated with a BS in Physics from CSU, Sacramento in 2012. Currently, she is working with Karl van Bibber, Adam Bernstein, and Steven Dazeley at Lawrence Livermore National Laboratory on a Gadolinium-doped water Cherenkov neutron detector as a possible alternative to some helium-3 detectors. Sasha is especially interested in the nexus of science (particularly radiation detection) and policy (particularly nonproliferation of nuclear weapons). Outside of academia, she loves traveling, reading, cooking, and brewing beer.

ROSS **BARNOWSKI**



Ross Barnowski is a 5th year PhD student in nuclear engineering at UC Berkeley. His research focus is the development of software and systems for gamma-ray imaging with a thesis project that deals specifically with the development of volumetric gammaray imaging capabilities by merging traditional imaging detectors with computer vision concepts. With his lab partner, he has developed a volumetric gamma-ray imaging platform based on planar segmented HPGe detectors and the Microsoft Kinect. Outside of work, he likea to spend his time outdoors hiking, biking, and reading; as well as playing basketball and home brewing.

BRUNELLE **BATTISTELLA**

Since October 2013, Brunelle Battistella has worked at the World Institute for Nuclear Security (WINS) as Project Manager. She is part of the team responsible for the development of the WINS Academy, the world's first international certification program for nuclear security management, and coordinates the Academy's promotion and outreach in addition to leading WINS' membership engagement efforts. Prior to joining WINS, Battistella worked in the field of international security and political affairs including at the Comprehensive Nuclear-Test-Ban Treaty Organisation (CTBTO) and the French Embassy in India. Battistella holds a master's degree in International Relations and Affairs from the Institute of Political Studies (France), along with a Certificate of Hindi from the National Institute of Oriental Languages and Civilizations (France).

JAMES **BEVINS**

James Bevins is a first year graduate student in the Nuclear Engineering Department at the University of California-Berkeley. He received a B.S. and M.S in Nuclear Engineering from the University of Tennessee and Air Force Institute of Technology, respectively. He is currently a National Science Foundation Graduate Research Fellow working in the Nuclear Policy Working Group, Bay Area Neutron Group, and Reactor Physics research groups at the University of California-Berkeley. His research interests include transport methodologies, radiation and nuclear effects/ phenomenologies, detection technologies with non-proliferation and national security applications, and nuclear weapon and non-proliferation policies.

BENJAMIN **CRIDER**

Benjamin Crider earned a Ph.D. in Physics at the University of Kentucky under Prof. Steve Yates, with a research focus on low energy nuclear structure and neutron cross section measurements. He is interested in the fundamental structure and properties of both stable and exotic nuclei and what they can tell us about the nature of the strong force and in the properties of nuclear reactions (in particular, neutron interactions) and how these can be applied to the development of next generation reactor design. With any nuclear reactor development, current societal viewpoints and biases must be addressed so that such technology can be funded, utilized, and trusted. Benjamin also has a BS in Physics, Mathematics from the University of Richmond.

PAUL **DAVIS**

Paul Davis is a AAAS Science and Technology Policy Fellow in the Nuclear Matters office at the U.S. Department of Defense. He previously served on the staff of the Senate Energy and Natural Resources Committee, where his portfolio included nuclear energy and R&D policy. Before moving to Washington, he was a postdoctoral scholar in Nuclear Engineering at UC Berkeley. He holds a PhD in Applied Science from Berkeley, where he studied the behavior of materials under extreme conditions as an NNSA Stockpile Stewardship Graduate Fellow.

JOHN **FEI**

As Program Officer at the John D. and Catherine T. MacArthur Foundation, John manages a $4 million per year grant portfolio supporting research that informs policy making pertaining to Asian security and regional relations, the linkages between domestic politics and foreign policy in Asia, and Asian economic, energy, and environmental issues. Previously, John held positions at the RAND Corporation, the University of California-San Diego, and the Carnegie Endowment for International Peace. He holds a Ph.D. in Policy Analysis from the Pardee RAND Graduate School, an M.A. in Regional Studies-East Asia, from Harvard University, and a B.A. from Williams College with honors in chemistry.

DANIEL **HELLFELD**

Daniel Hellfeld recently completed his master's degree in the department of nuclear engineering at Texas A&M University (TAMU). His current research interests include novel radiation detection methods in nuclear security and safeguards applications with a master's thesis on the feasibility of remote nuclear reactor antineutrino directionality via elastic electron scattering in a Gd-doped water Cherenkov detector. This work was carried out in collaboration with Lawrence Livermore National Laboratory and the Nuclear Science and Security Consortium at the University of California, Berkeley. At TAMU, he was also a member of the Nuclear Security Science and Policy Institute (NSSPI) and received a certificate in nuclear nonproliferation. In the fall, he will be attending the University of California, Berkeley working towards his doctorate degree in nuclear engineering.

AMBER **HENNESSY**

Amber Hennessy graduated from University of California – Irvine in 2012 with a B.S. in Chemistry. In her last year of the program, she began undergraduate research working with UCI's TRIGA reactor. After graduation, Amber trained to be a nuclear reactor operator at UCI's facility. She received her license in April of 2013. Over the summer of 2013, Amber became an employee of the reactor with the job title of laboratory assistant with duties that included reactor maintenance, assisting with tour groups, and setting up complex detection systems. In fall of that year, Amber became a graduate student at UCI where she took courses emphasizing topics of interest to the nuclear field. Now a second year graduate student, Amber's research project is to precisely measure gamma-ray signatures from long-lived radioactive nuclei produced from a fission event.

THOMAS **HICKEY**

Thomas Hickey is a student in the Masters of Public Policy program at University of California-Berkeley's Goldman School of Public Policy. Thomas holds a research position with the Nuclear Science and Security Consortium (NSSC), where he conducts research on improved policy analysis frameworks for nonproliferation applications, drawing heavily on network science. In addition to attending PPNT, Thomas will likely be spending this summer interning at a national lab and attending the Nuclear Scholars Initiative at the Center for Strategic and International Studies (CSIS).

MICHAEL **JONES**

Michael Jones is a Research Assistant at Michigan State University (MSU) working with Michael Thoennessen and the MoNA (Modular Neutron Array) Collaboration. His research involves studying the structure of neutron-rich and neutron-unbound nuclei at the limits of existence using invariant-mass spectroscopy. His dissertation topic is focused on measuring the neutron decay of 25O. The last bound oxygen isotope is 24O which, despite being as neutron-rich as it can be without falling apart, is remarkably well-bound -- so much so, that the large separation between its ground and first-excited state provides strong evidence for a new magic number N = 16.

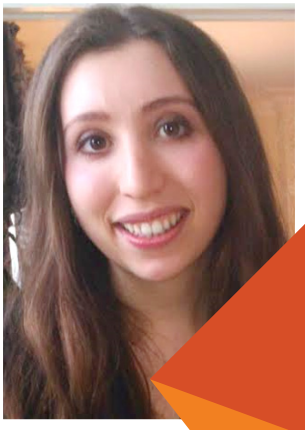
ELIE **KATZENSON**

Elie Katzenson is a fourth-year Political Science major at UC Berkeley with an Associate's degree in Photography from Santa Barbara City College. She recently began her position as a research assistant to the "Network Science for Nonproliferation" project under the Nuclear Science and Security Consortium. Born in Qatar and raised in Turkey, Germany, and the Netherlands, Elie enjoys speaking broken Turkish and making pretzels. Her tulip-growing abilities are non-existent.

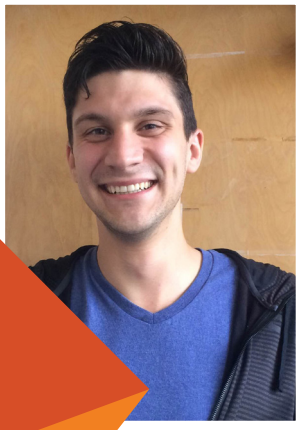
LEO **KIRSCH**

Leo Kirsch is a second year nuclear engineering graduate student at UC Berkeley working on inelastic neutron scattering at the Cyclotron at Lawerence Berkeley National Lab using high purtiy germanium detectors and coincidence circuits. He is also am working on the High Flux Neutron Generator in Etcheverry Hall using COMSOL simulations to model deuteron beam dynamics in electric and magnetic fields then comparing with experimental results. Leo studied at the University of Illinois at Urbana-Champaign in Nuclear Engineering with a concentration in Plasma Physics. He enjoy surfing, biking, and hiking in the gorgeous bay area, he likea to code games in C++ for fun, has recently picked up guitar, and he find time to read ~15 books a year.

ANNA BELLA **KORBATOV**



Anna Bella Korbatov is a research assistant for the University of California, Berkeley's Nuclear Policy Working Group, an interdisciplinary team of undergraduates, graduate students, and postdoctoral scholars focused on developing policy solutions to strengthen global nuclear security. In May 2015, she graduated from UC Berkeley with a Bachelor's degree in Political Science and a minor in Public Policy. She will be attending Johns Hopkins School of Advanced International Studies (SAIS) in the fall to pursue a Master's degree in International Relations. Her area of interest includes the social aspects of nuclear energy, specifically the intersection between nuclear policy, global development, and human rights and the potential of nuclear energy to promote sustainable development.



JEFFREY **KWARSICK**

Jeffrey is a PhD candidate in chemistry at the University of California, Berkeley. His work involves the development of accelerator targets for high intensity beam studies of the heavy and super heavy elements. He is also focused on conducting γ-ray spectroscopy on the heaviest known elements. Gamma-ray spectroscopy of these elements offers insight into the nuclear structure and behavior of the elements at the limits of stability. Jeffrey is advised by Professor Joseph Cerny.

RIZWAN **LADHA**

Rizwan Ladha is a PhD Candidate in International Relations at The Fletcher School of Law and Diplomacy, where his research focuses on the conditions under which states are more likely to develop a nuclear weapons capability without acquiring nuclear weapons outright. He has researched and written on nuclear dynamics between India and Pakistan, the Iranian nuclear program, and U.S. nonproliferation policy, and his work has been supported by the Tufts Institute for Global Leadership and the Carnegie Corporation of New York. He has been affiliated with the U.S. government, think tanks, and academia, having worked at Pacific Northwest National Laboratory, Ploughshares Fund, and the Project on Managing the Atom at the Kennedy School of Government. He holds a MALD from The Fletcher School and a bachelor of science degree from the Georgia Institute of Technology.

NICOLE **LARSON**

Nicole Larson is a nuclear chemistry graduate student at Michigan State University. Her research is focused on determining the low-energy level schemes of neutron-rich nuclei populate through beta decay, utilizing a Ge Double-Sided Strip Detector in a novel application. The resulting information will be used to probe the underlying nuclear structure in exotic nuclei as a function of proton and neutron number. Nicole is advised by Professor Sean Liddick.

BRIAN **LENARDO**

Brian Lenardo is a fourth-year PhD student in physics at UC Davis, specializing in liquid noble element detectors for low-energy radiation detection. A recipient of the Lawrence Graduate Scholar Fellowship, he works full time at the Lawrence Livermore National Laboratory (LLNL) as a member of the Rare Event Detection group. He is currently a member of both the NEST collaboration, building simulation software to model low-energy interactions in liquid xenon and argon, and the LUX collaboration, which operates a liquid xenon detector to search for galactic dark matter. His research focuses on modeling and calibrating advanced noble liquid detectors for rare event searches, with applications both in particle physics and nuclear non-proliferation.

CHARLES **LOELIUS**

Charles Loelius is a PhD candidate in nuclear physics at the National Superconducting Cyclotron Laboratory at Michigan State University, where he studies the lifetimes of nuclear excited states via gamma ray measurements. His professional interests are in nuclear non-proliferation through both international treaties and scientific development that makes treaty enforcement viable. Beyond his professional goals, Charles Loelius serves as Treasurer for the Graduate Employees Union AFT #6196 and as the Recording Secretary for the Council of Graduate Students at MSU.

BRIANA **MEGID**

Briana Megid is a second-year Political Science major with an emphasis on International Relations and a minor in English. With a strong policy background, Briana has worked for the American Civil Liberties Union, the District Office of Congressman Garamendi and the Office of Senate Minority Leader Harry Reid. She has applied her love of leadership and activism in her passion for suicide prevention through her 6-year relationship with the American Foundation for Suicide Prevention. Through high school and college, Briana has built student organizations centered around the mission of the Foundation while simultaneously serving on the National Loss and Bereavement Council as one of two college representatives. Briana has played the cello for 12 years and, on her off time, is an avid runner.

JAMES **MORAD**

James Morad is a fifth-year graduate student of physics at the University of California, Davis with a focus on low-background materials screening and liquid noble element detectors for rare event searches. James was awarded the DOE Office of Science Graduate Student Research fellowship for a one year term starting January 2015 and is currently working at Lawrence Berkeley National Lab studying the causes and effects of electric field breakdown in xenon time projection chambers.

JOSE **OCAMPO**

Jose Ocampo is a Ph.D. candidate in Physical Chemistry at the University of California Irvine. His research interest is the beta-delayed neutron emission process. He has worked on gas and Cerenkov neutron detection as well as neutron-gamma ray coincidence spectroscopy. He received a B.S. in Chemistry from California State University San Bernardino. An interest in automation has led him to investigate adapting new computer assisted manufacturing technologies to experiments for improved remote control.

ANNA **PÉCZELI**

Anna Péczeli holds a PhD from Corvinus University of Budapest with a thesis focused on the Obama administration's nuclear strategy and examining to what extent the legacies of the Cold War still define U.S. nuclear posture and planning. She is an assistant lecturer at Corvinus University of Budapest and a research fellow at the Center for Strategic and Defense Studies at the National University of Public Service. She was previously an adjunct fellow at the former Hungarian Institute of International Affairs and spent a 3-month visiting research fellowship at the Peace Research Institute Frankfurt. She was the recipient of a 7-month Fulbright fellowship at the Nuclear Information Project of the Federation of American Scientists in Washington, DC. She is a member of the G7 Berlin Group – International Coalition for CBRN Security Culture; the European Defence and Security Network; the CSIS Project on Nuclear Issues (PONI); the EU Non-Proliferation and Disarmament Consortium; and a member of the Executive Board of the International Student/Young Pugwash (ISYP) group.

JAMES **PELTZ**

James Peltz is a Program Manager in the Enabling Capabilities (EC) Team within the Office of Proliferation Detection, an office within DNN R&D that develops advanced capabilities for the U.S. Government to detect, locate, and characterize foreign nuclear weapons programs, verify nuclear arms control treaty compliance, and provide support to broader U.S. nuclear security activities. James specifically manages the data science, and simulations, algorithms and modeling portfolios in EC which seek to develop and provide innovative solutions, methods and technical capabilities to address and overcome challenges to characterizing, detecting, locating, and securing special nuclear materials. Prior to his current position, James managed similar programs utilizing high performance computing for the Office of Nuclear Energy. James came to DOE as a Presidential Management Fellow (PMF) after obtaining his Masters in Environmental Science and Policy from the Johns Hopkins University. He brings a wide range of experience from the various programs he's managed at DOE, his time in U.S. Navy and while teaching 6th grade on the Hualapai Indian Reservation in Arizona.

JILL **PESTANA**

Jill Pestana is a physicist and materials scientist pursuing her Ph.D. in Materials Science and Engineering at the University of California, Irvine (UCI) with the Collins Research Group. Her doctoral research centers on investigating ion transport in rechargeable lithium-ion battery materials. Jill is ambassador for the Nuclear Policy Working Group (NPWG) satellite group at UCI and a NCCS Nuclear Security Policy Fellow. Jill founded the Discover Science Initiative organization at UCI, which assists faculty and students in effectively communicating their cutting-edge research through public presentations and workshops at the Discovery Cube of Orange County. Jill completed her B.S. in physics at California State University, Long Beach (CSULB) where she established a Society of Physics Students chapter. She has completed internships with NASA at the Armstrong Flight Research Center (AFRC), the Jet Propulsion Laboratory (JPL), and with the Boeing Company in the Boeing Research & Technology unit. Underlying her professional and academic interests is a love for experiencing the universe and appreciating her place in it whether in the laboratory, backpacking through the mountains of California, swimming the waters along the Pacific coastline, or by communicating human expression and creativity through her music.

ANDERS **PRIEST**

Anders Priest is a third year graduate student at UC Berkeley in the Nuclear Engineering Department under Professor Kai Vetter's mentorship performing research in the area of radiation detection and imaging. His research subject is the fabrication and operation of a novel, position sensitive readout system for ionization type radiation detectors. This significantly reduces the number of electrodes needed to achieve fine position resolution in these types of detectors, making fabrication of these systems simpler. Very fine position resolution is necessary in nuclear physics and applications requiring radiation imaging, such as homeland security, environmental remediation, and medical imaging.

NINA **SILOVE**

Nina Silove will be a Postdoctoral Scholar at the Center for International Security and Cooperation (CISAC) at Stanford University in August 2015. She is currently a Postdoctoral Fellow at the Clements Center for History, Strategy, and Statecraft at the University of Texas at Austin. Her research focuses on grand strategy, strategic planning, and U.S. policy toward the Asia-Pacific region. She holds a DPhil (PhD) in International Relations from the University of Oxford and a degree in law with first class honors from the University of Technology, Sydney. Previously, Silove was a Research Fellow in the International Security Program at the Belfer Center in the John F. Kennedy School of Government at Harvard University, a visiting Lecturer in the Department of Government and International Relations at the University of Sydney, and the Tutor for International Politics in Diplomatic Studies at the University of Oxford.

JAMES **SIMPSON**

James T. Simpson is a Ph.D. candidate in the Department of Political Science at Boston University. His current research is focused on the interplay between nuclear deterrence perception, nuclear strategy, and nuclear doctrine in Asia. James holds an M.A. from Stanford University (2008) and a B.A. from Washington University (St. Louis) (2004). Prior to entering Boston University, James worked for both private defense contractors and the United States government. His research languages include Chinese, Japanese, and Hindi.

DAVID **SWEENEY**

David Sweeney is a postdoctoral scholar in the Nuclear Science and Security Consortium at the University of California, Berkeley. David received his PhD and Master's degree in Nuclear Engineering from Texas A&M University and his Bachelor's degree in Chemical Engineering from Northwestern University. David's research has focused on the analysis of nuclear weapons proliferation dynamics and proliferation risk through network science and stochastic systems applications. At the NSSC, David also has been supporting the writing of Nuclear Security: The Nexus of Technology and Policy, a textbook on nuclear security.

KENNETH **WHITMORE**

Kenneth Whitmore is a fifth-year graduate student studying nuclear physics at Michigan State University. He works with Hiro Iwasaki in the lifetime group. His research focuses on using gamma spectroscopy to measure the lifetime of excited states of radioactive nuclei. Measurements of these lifetimes leads to an understanding of how the protons and neutrons interact inside the nucleus and how these interactions change when moving from stable to radioactive nuclei. These measurements also serve as a stringent test of current nuclear structure theory. His current research is measuring the lifetime of the first excited state of 19C. 19C is known to be a halo nucleus, and measurement of the gamma transition will provide insight into how its halo nature relates to its electromagnetic properties.

JOIN THE PPNT FACEBOOK GROUP

During the boot camp you will be invited to join via email.

or

Search for “PPNT” in the Facebook search and request to join. You’ll be confirmed as a PPNT participant and will be added to the group!

The closed PPNT Facebook group is a fantastic way to keep in touch with your cohort as well as to meet and interact with past cohorts and speakers. Group members regularly post links to newly published research, ask for contributions to current research, and debate news stories relating to public policy and nuclear threats worldwide.