



Patricia Schuster is a PhD student in nuclear engineering at the University of California, Berkeley. She has an M.S. degree in nuclear engineering from Berkeley and a B.S.E. degree in nuclear engineering and radiological sciences from the University of Michigan. Patricia works on radiation detection applications, focusing on methods for neutron detection. She spent two years at Sandia National Laboratories in Livermore, CA working on neutron imaging techniques for large scale search and localization applications. Patricia's thesis work is studying the anisotropic response of organic crystal scintillators to neutrons through measurements and models. Patricia is part of the Nuclear Science and Security Consortium at Berkeley, and has taken courses with Michael Nacht and Stan Prussin on nuclear security policy. In 2012 she attended the International Nuclear Safeguards Policy course at the Monterey Institute for International Studies, and in 2013 she attended the Public Policy and Nuclear Threats workshop at the University of California, San Diego. Although Patricia has a technical focus, she keeps up with current events and reads historical and political books related to nuclear security. She hopes to find a career that will allow her to work on technical and non-technical problems.



Kenneth Whitmore is a nuclear physics graduate student at the National Superconducting Cyclotron Laboratory 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 nuclear states. Measurement of these lifetimes leads to an understanding of how nuclei change shape far from stability as well as the interactions between the protons and neutrons inside the nucleus. These measurements serve as a stringent test of current nuclear structure theory. His current research is measuring the lifetime of the first excited state of  $^{19}\text{C}$ .  $^{19}\text{C}$  is known to be a halo nucleus, and measurement of the gamma transition will provide insight into how its halo nature contributes to its electromagnetic properties.



Jennifer Logan is currently a second year student in Analytical Chemistry at University of California-Irvine. She earned her B.S from University of West Florida in 2010, where she studied the seasonal and spatial variations in the UV absorbing capacity of natural phytoplankton communities. At the start of her graduate degree at UC-Irvine, she worked in an inorganic lab synthesizing iron complexes containing a redox-active [ONO] ligand scaffold used for multi-electron small-molecule activation reactions and quantified the organic products formed during these reactions. For her PhD research, under the guidance of Drs. Annie Kersting and Mavrik Zavarin at the Glenn T. Seaborg Institute at LLNL and Drs. A.J. Shaka and George Miller at UC Irvine, she will conduct research in environmental radiochemistry and actinide chemistry.



Jose Ocampo is a graduate student in the Department of Chemistry at the University of California, Irvine. He has a B.S. in Chemistry from California State University San Bernardino. He is a reactor operator at the UCI TRIGA reactor. His research involves characterizing the fission products which produce delayed neutrons. Delayed neutrons are important for controlling fission reactions and a better understanding would help in developing other types of nuclear reactors. His interests include nuclear detector integration, high speed data acquisition and signal processing. Jose Ocampo is advised by A J Shaka.



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 the UCI TRIGA reactor. Her project consisted of measuring neutron fluxes at different positions and different heights around the reactor core. After graduation, Amber trained to be a reactor operator and got her RO license for the UCI TRIGA reactor in April of 2013. In Fall of that year, she became a graduate student at UCI where she took classes emphasizing topics of interest to the nuclear field. As a graduate student, Amber's research project is to precisely measure gamma-ray signatures from long-lived radioactive nuclei. There is a large error when decay schemes of radioactive isotopes such as Neodymium-147, Europium-156, and Tellurium-167 are discussed. Some of the best numbers for these isotopes are of the 8% and 19% uncertainty. Her project is to reduce these errors to the less than 1% level by accurately characterizing the gamma branching ratios of these isotopes, which will increase the reliability of calculations concerning the number of fissions products produced. Her research will be overseen by Dr. A.J. Shaka at UCI along with their collaborator, Nicholas Scielzo, at Lawrence Livermore National Laboratory.



Lake Wooten is a Ph.D. student in Biomedical Engineering at Washington University in St. Louis, and his primary dissertation advisor is Suzanne Lapi, Ph.D., in the Mallinckrodt Institute of Radiology, Washington University School of Medicine. Lake's research focuses on the production of positron-emitting radioisotopes of transition metals, especially  $^{89}\text{Zr}$ ,  $^{86}\text{Y}$ , and  $^{52}\text{Mn}$ . The scope of his dissertation work includes nuclear cross-section measurements, target preparation, product isolation by ion-exchange chromatography, automated product isolation, and biomedical imaging applications via positron emission tomography (PET). Lake was raised in a suburb of Kansas City and then earned a B.S. in Engineering Physics and a B.S. in Aerospace Engineering from the University of Kansas.



Charles Loelius is a member of the National Superconducting Cyclotron Laboratory (NSCL) lifetime group. He came to the laboratory from Rutgers University, where he majored in physics, mathematics, and philosophy. Before arriving at the laboratory Charles Loelius attended the Nuclear Radiochemistry Fuel Cycle Summer School at the University of Las Vegas, where he worked on developing a method of producing Uranium-Zirconium alloys. As part of the lifetime group at the NSCL, Charles Loelius works with gamma ray spectroscopy. His current work focuses on refining the use of GRETINA's tracking ability and applies this to lifetime measurements. He does so via efficiency determinations and demonstrations of the improved resolution and characterization of gamma rays from in flight emission.



Tara Mastren is currently a chemistry graduate student at Washington University in St Louis, St Louis, Missouri. Her research focuses on experiments related to isotope harvesting at the future Facility for Rare Isotope Beams (FRIB) located at Michigan University. This fragmentation facility will produce a wide variety of isotopes and will select a purified beam of one of these for nuclear physics experiments. Many of the other isotopes produced are important for a variety of applications and are unavailable by other nuclear reaction routes. These "orphan isotopes" will be available for harvest from the beam dump at the FRIB facility. Tara is working on separation methods for isotope purification and will conduct several proof-of-principle experiments using the current facilities at NSCL. Tara is advised by Dr. Suzanne Lapi and coadvised by Dr. Lee Sobotka.



Chris Morse is a graduate student at Michigan State University. His research is focused on the measurement of the lifetimes of excited nuclear states via gamma-ray spectroscopy. The goal of these studies is to understand the underlying structure of the nucleus and the interactions which bind nucleons together. His current work is on proton-rich medium mass nuclei and demonstrating the Differential Recoil Distance Doppler Shift technique, a novel method for precise determination of the lifetimes of exotic nuclei.



Jeffrey Kwarsick is a nuclear 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 the study of electron capture delayed fission in neutron-deficient actinides. A new rotating fission detector will help to provide insight into the fission barriers of these neutron-deficient nuclei. Jeffrey is advised by Professor Heino Nitsche.



Nicole Larson is currently a graduate student at Michigan State University. She has worked in Sean Liddick's group for the past four years, studying beta-decay spectroscopy. Her work has, to this point, primarily involved commissioning and characterization of a planar Germanium Double-Sided Strip Detector (GeDSSD). The GeDSSD has a high beta-decay electron detection efficiency, and is also highly efficient at detecting low-energy gamma-rays. As such, there exists the possibility that energy depositions from an electron and a low-energy gamma-ray could sum together. Thus, Nicole has also worked on developing an algorithm to reduce the effects of this summing, which will be used in future experiments utilizing this device.



Sergey Uvarov attended University of California in Davis for his undergraduate career where he first enrolled as an mechanical engineering student. He later changed his major to physics. Sergey continued his graduate career at UC Davis as a PhD candidate in Physics. His research is in direct detection of dark matter with the LUX detector, specifically focusing on S2 only analysis.



John Ready is a 4th year PhD candidate at UC Berkeley. He works for Kai Vetter within Berkeley's Nuclear Engineering Department as well as the Applied Nuclear Physics Group at LBL. John's research work involves simulations and experimental measurements of prompt gammas produced during proton cancer therapy. The goal of this project is to use the high-energy gammas as a means to determine the proton beam range in the patient. John is a graduate of the Public Policy and Nuclear Threats program at UCSD in addition to the Nuclear Forensics Summer School at UNLV. Prior to Berkeley, he was a nuclear engineering officer in the US Navy.



Melanie White studies Physics and Mathematics as an undergraduate student at the University of Nevada- Las Vegas. She is also a student researcher at UNLV, working under two professors in the field of high pressure physics. Melanie comes from a military family- her parents were both in the Air Force, and she has relatives from every branch. Growing up as an Air Force brat really instilled in her a love of travelling and trying new things. Once her father retired, they settled in a small desert town outside of Las Vegas, where Melanie graduated high school and received an Associate's Degree in Science from the local community college. It wasn't until college that Melanie took her first physics class- it changed everything for her and from then on she knew she had something she wanted to learn about for the rest of her life. Melanie moved to Las Vegas and transferred to UNLV in order to further her education. Soon after transferring, she started working for Dr. Michael Pravica, Associate Professor and member of the High Pressure Science and Engineering Center (HiPSEC) at UNLV. In the year and a half that Melanie had known Dr. Pravica, she had been a part of several experiments involving useful hard x-ray induced chemistry. Additionally, Melanie recently started working for Dr. Ravhi Kumar, Research Professor and also a member of HiPSEC. Melanie loves her work! It has presented her with so many opportunities; not only improving her education but also helping her begin a career in physics.



Teal Pershing is a Ph.D. student at UC Davis. He received his Bachelor's degree in Physics from Oregon State University. As an undergraduate, Teal has performed research in Fourier Optics for applications in solar convection cell analysis, as well as mechanical loss measurements of silicon/silica based coatings for gravitational wave interferometer mirrors. Currently at UC Davis, he is completing the necessary coursework for his Ph.D. and assaying materials for neutrino detector physics via neutron activation analysis.



Michael Jones is a graduate student at Michigan State University. His research focuses on using invariant mass spectroscopy to study nuclear structure at and beyond the neutron drip-line. As part of the MoNA Collaboration, his work involves detection of neutrons with the Modular Neutron Array (MoNA), the Large multi-Institution Scintillator Array (LISA), in addition to the detection of charged particles bent by the Sweeper Magnet. As part of his research, he recently helped install the Ursinus College Liquid Hydrogen Target and used it for the first time with deuterium. Michael is advised by Michael Thoennessen.



Lauren Janney is an undergraduate student at the University of California, Berkeley studying Nuclear Engineering with a minor in Electrical Engineering and computer Science. She is currently doing research under Kai Vetter on detection of radiation within the environment, specifically the variation of radioactivity in air for weather changes.



Daine Danielson has been exploring neutrino physics with Professor Bob Svoboda since 2011. The group's focus is particle research, but the promise of reactor neutrino monitoring in nuclear nonproliferation science has led it into that field, specifically through the WATCHMAN and CANDU reactor monitoring efforts. Daine's present efforts address the possibility of using the WATCHMAN detector to resolve the neutrino mass hierarchy problem; and development of the CAPTAIN detector at LANL, part of the group's larger involvement in the LBNE collaboration. Before attending UC Davis, Daine worked with Barbara Neuhauser at San Francisco State University, designing and fabricating superconducting tunnel junctions for X-ray spectroscopy of enzymes at ALS.



Jon Bowers is an undergraduate student in the College of Chemistry at the University of California, Berkeley. He completed a Liberal Arts degree from the University of Illinois at Urbana-Champaign in 2000 and spent more than 10 years in management before returning to university life. He is in pursuit of a B.S. in Chemistry.



Nicholas Weldon is a graduate student studying Mineral Physics at the UC Davis department of Earth and Planetary Science. He received a Bachelor of Arts in Chemistry and Geology from Colorado College in 2012. So far, his academic career has touched on a variety of topics and has included internships in structural geology and solid-state chemistry at the University of Oregon, a thesis on stable isotope geochemistry with Dr. Ilya Bindeman at the UO stable isotope lab and research in crystallography and protein chemistry with Dr. Mair Churchill at the University of Colorado, School of Medicine. Currently, Nicholas is working with Dr. Charles Leshner to measure diffusion rates in high pressure silicate melts, and is interested in applying diffraction techniques to explore the relationship between the fundamental structural characteristics of melts and their material properties.



Cameron Bates is a Ph.D. student in nuclear engineering at the University of California, Berkeley working at Lawrence Livermore National Laboratory. His primary focus is the development of radiation detection technologies for arms control and non-proliferation applications. He is specifically interested in the isotopic characterization of plutonium using ultra-high resolution gamma ray detectors. After he finishes his thesis he is interested in developing similar technologies that attempt to address non-proliferation and arms control problems with technical solutions. Cameron completed his BSE in nuclear engineering and radiological sciences at the University of Michigan, Ann Arbor in 2010. For his senior design thesis he worked with a team to design and model a passive gamma ray assay station for nuclear fuel assemblies and develop an algorithm to determine reactor type and burn-up based on ratios of gamma-ray line intensities.