

## NSSC-LANL Keepin Summer Program: Participants

### Nuclear Science and Security Consortium (NSSC) Students



**Alex Dombos** is a PhD student at the National Superconducting Cyclotron Laboratory (NSCL) at Michigan State University where he researches nuclear astrophysics. His research group uses the Summing NaI(Tl) (SuN) detector, a gamma-ray total absorption spectrometer that is optimized for geometric and intrinsic efficiency, to study the nuclear reactions and beta decays that occur in astrophysical processes. Alex conducted his thesis experiment at the NSCL using the SuN detector and multiple charged-particle detectors to study the beta decay of neutron-rich nuclei. His group plans to use the data produced to constrain theoretical models that are used in r-process calculations.

**Group:** T-2 **Mentors:** Toshihiko Kawano, Matthew Mumpower



**Emily Frame** is a PhD student in Nuclear Engineering at the University of California, Berkeley. She previously received her BS in Nuclear Engineering at the University of Tennessee, Knoxville. Emily has conducted nuclear security research at the Czech Technical University in Prague for almost two years and has interned at Oak Ridge National Laboratory. She is currently designing a NaI detection system for tracking and monitoring radioactive sources at traffic choke points. Outside of research, Emily enjoys swimming and playing mafia.

**Groups:** XCP-3, NEN-2 **Mentors:** Madison Andrews, Bill Myers



**Caroline Hughes** is a first year PhD student at the University of California, Berkeley, interested in computational research for safeguards by design for molten salt reactors. Caroline graduated in December 2015 from the University of Colorado, Boulder with a BS in Engineering Physics. Additionally, she has studied Arabic for over three years, including two months in Jordan. In her free time, Caroline loves the outdoors (canoeing, kayaking, sailing, backpacking), freelance graphic design work, monster trucks, psychological thrillers, and movies featuring puppetry as a major motif.

**Group:** SPO-CNP **Mentor:** DV Rao



**James Louis-Jean** is a second year PhD student in the Radiochemistry Program at the University of Nevada, Las Vegas. He has a BA in Chemistry with a concentration in Radiochemistry from Florida Memorial University. His research focuses on exploring the coordination and synthetic chemistry of technetium halide complexes, synthesizing new technetium binary halides, and comparing the chemistry of technetium with neighboring transition metals (Re, Mo, Ru). His primary goals are to better understand the basic and fundamental chemistry of technetium and to explore its chemical behavior for nuclear fuel separation and potential waste form applications.

**Group:** C-NR **Mentor:** Jeremy Inglis



**Jason Matheny's** experiences include ten years of service in the U.S. Army where he was an Explosive Ordnance Disposal (EOD) technician. As an EOD tech, he received extensive training on safety and disposal of conventional and improvised explosive devices. He is currently a student at the University of Tennessee, Knoxville. He is enrolled in their undergraduate Nuclear Engineering program and is pursuing a minor in Mathematics. Jason works part time as an undergraduate research assistant with the Institute for Nuclear Security.

**Groups:** NEN-2, A-3 **Mentors:** James Miller, Kyle Sternberg



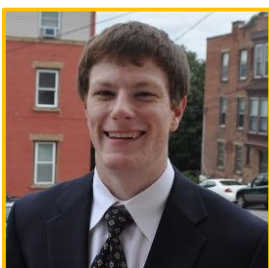
**Ryan Priest** is a nuclear engineering student at the University of Tennessee. He is currently investigating material characterization of LISe, pulse shape discrimination methods for mixed radiation fields, and neutron CT imaging of spent fuel assemblies. He has supported projects funded by NEUP, NANT, and NSSC. He earned a BS in Nuclear Engineering from North Carolina State University in 2014, an MS in Nuclear Engineering from the University of South Carolina in 2016, and is working towards his PhD. His past research experience includes metallic materials characterization, ORIGAMI modeling of spent nuclear fuel, and MCNP modeling of spent fuel storage canisters.

**Group:** NEN-1 **Mentor:** Andrea Favalli



**Katherine (Kathy) Shield** is a first year PhD student at UC Berkeley in Nuclear Engineering. She is narrowing her research field on radiochemistry with a focus on nuclear fuels/waste. She is also interested in exploring the intersection between technical aspects of advanced nuclear energy and the security policy aspects of potential construction in developing nations. Outside of research, Kathy is passionate about getting STEM students active in their communities - in science advocacy, policy, and communications. Before starting at Cal, Kathy worked for the Nuclear Innovation Alliance and the Clean Air Task Force on Nuclear Policy. She holds a BS in Chemical Physics and in Political Science from Tufts University. Regardless of the season, she can be found in the mountains hiking, swimming, skiing, or camping.

**Group:** C-NR **Mentors:** Bob Rundberg, Audrey Roman



**Mark Straub** is a PhD student in chemistry at the University of California, Berkeley. He received his undergraduate degree from Rensselaer Polytechnic Institute. Mark's current research is focused on the synthesis of new uranium complexes as precursors to uranium oxide and nitride nanomaterials. Future work includes the development of routes to control the growth of these nanomaterials, and the expansion of this project using transuranic elements.

**Groups:** C-IIAC, XTD-NTA **Mentors:** Jaqueline Kiplinger, Julianna Fessenden



**Katherine Thornock** is a second year graduate student in the Radiochemistry PhD program at the University of Nevada, Las Vegas (UNLV). Her research focuses on uranium separations in ionic liquids and electrochemical studies. She graduated from Boise State University in 2014 with a BS in Chemistry. Katherine is currently serving as the President of the UNLV student section of the American Nuclear Society and the Branch Publisher of the UNLV Chapter of the Scientista Foundation. She is from Idaho Falls, Idaho.

**Group:** C-NR **Mentor:** Jeremy Inglis



**Hi Vo** is going to be a first year PhD student in Nuclear Engineering at the University of California, Berkeley. He obtained his BS degree in Nuclear Engineering & Materials and Engineering at UC Berkeley. His undergraduate research centers on micro- and nano-mechanics for irradiated materials. This summer, he will be investigating the dose rate dependence of the stability of nanoprecipitates in inconel 718.

**Group:** MST-8 **Mentor:** Stu Maloy



**Jeremy Watts** is a Graduate Student Research Assistant supported by the Nuclear Science and Security Consortium to work in fast neutron imaging research in collaboration with the National Laboratories (laboratory mentor Dr. Jason Newby). He is currently an early stage Ph.D student in the Department of Nuclear Engineering at the University of Tennessee (graduate advisor Dr. Jason Hayward). He holds a BS in Physics from the University of Tennessee, Chattanooga.

**Group:** NEN-2 **Mentor:** Bill Myers



**Tyler Jordan** is a University of Michigan senior studying Nuclear Engineering and Radiological Sciences. Tyler began working with Sara Pozzi's Detection for Nuclear Nonproliferation Group, developing a fast neutron multiplicity well counter, comparing fission models between FREYA and MCNPX-PoliMi, and investigating the temperature dependence of organic scintillator detector response. He is developing and testing parameters for organic scintillator pulse-shape discrimination techniques. Tyler plans to enroll in a PhD program in Nuclear Engineering with a focus in radiation detection for nonproliferation applications, after which he hopes to find a position at a national lab.

**Groups:** XCP-3, NEN-2 **Mentors:** Madison Andrews, Krista Meierbachtol

## Consortium for Verification Technologies (CVT) and Consortium for Nonproliferation Enabling Capabilities (CNEC) Students



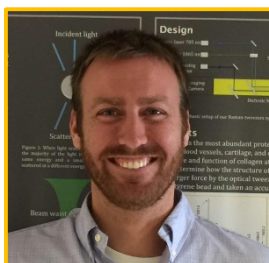
**Taylor Harvey** recently graduated with a Bachelor of Science from the University of Florida (UF) in Nuclear Engineering. He is entering into the PhD program in Nuclear Engineering in the fall of 2017. During his time at UF, Taylor worked in a research group focusing on improving organic liquid scintillation technology. Outside of his professional scientific pursuits, Taylor is interested in music, literature, and the arts. He has also been president and team captain of the University of Florida Quiz Bowl Team since 2015.

**Group:** NEN-1 **Mentor:** Martyn Swinhoe



**Katie Mummah** is an entering Nuclear Engineering PhD student at the University of Wisconsin. She received her Bachelors from the University of Illinois in May 2017. Her graduate research will focus on developing computational tools for the nuclear fuel cycle. Katie is a passionate nuclear advocate and is excited to develop a stronger background in nonproliferation and safeguards. When she is not working, Katie likes to spend her time hiking, camping, and playing badminton.

**Group:** NEN-5 **Mentor:** David Poston



**Ryan O'Mara** is a PhD student in Nuclear Engineering at North Carolina State University. He earned his undergraduate degrees in Radiological Sciences from the University of North Carolina at Chapel Hill and Physics from North Carolina State University. He is currently researching the applications of thermally and optically stimulated luminescence to nuclear nonproliferation and accident dosimetry. Ryan's previous research topics include automated Raman spectroscopy and high-temperature superconductivity.

**Group:** XCP-3 **Mentor:** Jeff Favorite



**Maria Pinilla** earned a Bachelor of Science in Mechanical and Nuclear Engineering at Kansas State University (KSU). She is finishing her Master's degree in Nuclear Engineering in the spring of 2017 and will continue at KSU to complete her doctoral degree in the same field. Maria began doing research at Los Alamos National Lab during the summer of 2016. Her studies focus on Monte Carlo modeling, code verification and benchmarking, and nuclear nonproliferation efforts.

**Group:** XCP-3 **Mentor:** Michael Rising

## Non-consortia Students



**Wyatt Clegg** is a Master's student in Statistics at Brigham Young University. Originally from Logan, UT, he loves the outdoors, including hiking, motorcycling, and downhill skiing. Wyatt is halfway through his program and will be pursuing a PhD in Statistics after he completes his degree. Wyatt has held multiple positions as a translator, data collector, and statistician.

**Group:** CCS-6 **Mentor:** Jim Gattiker





**Shannon Kossmann** has just completed her first year of undergraduate studies at Dartmouth College majoring in Engineering with a minor in Classics. During her freshman year, she worked in Dr. Jane Hill's laboratory as an intern in biomedical engineering. She worked in the Nuclear Engineering and Nonproliferation group at Los Alamos National Laboratory last summer and is excited to be returning to LANL. Shannon is a native of Santa Fe, New Mexico. Outside of school, she can be found rowing with the Dartmouth Women's crew team or playing her violin. She is also an Irish Dance national champion.

**Group:** NEN-1 **Mentor:** Mark Croce



**Meghan McDonald** grew up in Los Alamos, New Mexico and Arlington, Virginia. She is a senior at Virginia Tech University, majoring in International Studies with a concentration in Security and Foreign Policy, along with a French minor. Meghan interned on Capitol Hill in a Congressional Office for four months and has worked at Los Alamos National Laboratory for three summers. After college, Meghan plans to pursue a Master's in Public Policy.

**Group:** A-2 **Mentor:** Erika Leibrecht



**Benigno Sandoval** was born and raised in Los Alamos before attending the University of Notre Dame where he received his BS in Mechanical Engineering. After returning to New Mexico to rehabilitate the scorched trails around Los Alamos, Benigno became a graduate research assistant for the Space Instrument Realization group (ISR-5) at LANL while pursuing his MS in Mechanical Engineering. Benigno contributes primarily to the Mars 2020 rover instruments SuperCam and SHERLOC, volunteer-coaches high school pole vault, and plays Ultimate Frisbee whenever he can.

**Group:** ISR-5 **Mentor:** Steven Storms

## NSSC-LANL Keepin Summer Program:

### Staff



**Bethany Goldblum** is a member of the research faculty in the Department of Nuclear Engineering at the University of California, Berkeley. She also serves as Director of Education for the Nuclear Science and Security Consortium and Director of the 2014 Public Policy and Nuclear Threats Bootcamp. Goldblum received a PhD in Nuclear Engineering from the University of California, Berkeley in 2007. Her research interests are in the areas of fundamental nuclear physics for nuclear security applications, nuclear-plasma interactions, scintillator characterization, and nuclear energy and weapons policy. Goldblum maintains active collaborations with the United States Department of Energy national laboratories and is an affiliate at Lawrence Berkeley, Lawrence Livermore and Sandia National Laboratory.



**Charlotte Carr** is the Program Manager of the Nuclear Science and Security Consortium. Charlotte holds a Master's Degree in Public Administration from the Middlebury Institute of International Studies at Monterey.



**Nina Rosenberg** has worked in both technical and leadership roles at NNSA National Laboratories since 1991. She is currently the Program Director of Nuclear Nonproliferation and Security at Los Alamos National Laboratory, where she manages a portfolio that includes primarily work for NNSA's Office of Defense Nuclear Nonproliferation. In 2011, Nina returned to Los Alamos where she was a staff scientist in the Earth and Environmental Sciences Division from 1991 until 1998. In the interim, Nina worked at Lawrence Livermore National Laboratory in a variety of roles including Division Leader and member of the senior management team in Livermore's Physical and Life Sciences Directorate, and Global Security program manager. She is currently the Deputy Chair of the Nonproliferation and Arms Control Technical Division in the Institute for Nuclear Materials Management (INMM). Nina is a geoscientist with experience in subsurface contaminant transport and remediation, water resources, and geologic repositories for nuclear waste. She earned a PhD and M.A. from the University of California, Santa Barbara and a B.A. from Princeton University.

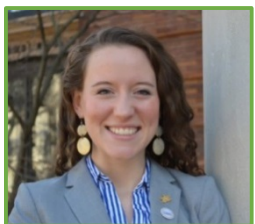


**Rian Bahran** is currently an R&D staff member at Los Alamos National Laboratory in the Nuclear Engineering & Nonproliferation Division where he leads R&D/training efforts for nuclear nonproliferation, international safeguards and security. He obtained his PhD in Nuclear Engineering and Science from Rensselaer Polytechnic Institute (RPI) and holds a Dual BS in Nuclear Engineering & Engineering Physics from the same university. At Los Alamos, he is a member of the critical experiments team which is responsible for the execution of various category I special nuclear material measurement campaigns. He is the Los Alamos POC for the NSSC.



**Chloe Verschuren** is a 2016 graduate of Texas A&M's Bush School of Government and Public Service, having earned a Masters of International Affairs. Her graduate studies focused on nuclear deterrence theory, nonproliferation policy, and transatlantic affairs. Originally working for the National Security and International Studies Office at Los Alamos, Chloe now supports work in the Nuclear Engineering and Nonproliferation Division including the Keepin summer program. Outside of work, Chloe enjoys reading Steven King novels, traveling the world, and attending

trivia nights.



**Miriam Rathbun** is from Pittsburgh but lived many years in France and Morocco growing up. She returned to Pittsburgh for college and got very involved in the nuclear community and in the American Nuclear Society. She will begin graduate school in a PhD program this fall at MIT, studying computational methods development. This summer at LANL, she will be assisting with executing the Keepin Summer Program and is also designing a critical experiment to validate nuclear data. Miriam's hobbies include salsa and swing dancing, biking, and meeting new people.