CAMERON LEE TRACY

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POSITIONS

Stanford University, Center for International Security and Cooperation (CISAC) 2021 - current
Social Science Research Scholar

Union of Concerned Scientists, Global Security Program 2019 - 2021
Global Security Fellow

Harvard University, Belfer Center for Science and International Affairs 2018 - 2019
Nuclear Security Postdoctoral Fellow

Stanford University, Department of Geological Sciences 2015 - 2018
Postdoctoral Research Fellow

Stanford University, Center for International Security and Cooperation (CISAC) 2015 - 2017
Nuclear Security Postdoctoral Fellow

University of Michigan, Department of Materials Science and Engineering 2011 - 2015
Graduate Research Assistant

Los Alamos National Laboratory, Materials Science and Technology Division 2009 - 2010
Research Assistant

University of California, Davis, Department of Materials Science and Engineering 2008 - 2010
Research Assistant

EDUCATION

University of Michigan, Ann Arbor, Michigan August 2015
PhD, Materials Science and Engineering

University of Michigan, Ann Arbor, Michigan December 2013
MS, Materials Science and Engineering

University of California, Davis, California June 2011
BS, Materials Science and Engineering

SCHOLARLY PUBLICATIONS (SECURITY STUDIES)

D. Wright, **C.L. Tracy**, "Hypersonic weapons: Vulnerability to missile defenses and comparison to MaRVs," *Science & Global Security*, 31, 68 (2023)

S. Park, **C.L. Tracy**, R.C. Ewing, "Reimagining US rare earth production: Domestic failures and the decline of US rare earth production dominance — lessons learned and recommendations," *Resources Policy* 85, 104022 (2023)

C.L. Tracy, D. Wright, "'Computational fluid dynamics analysis of the infrared emission from a generic hypersonic glide vehicle'—A response," *Science & Global Security* 31, 41 (2023)

C.L. Tracy, R.C. Ewing, "Mining for the bomb: The vulnerability of buried plutonium to clandestine recovery," *Science & Global Security* 30, 131 (2022)

C.L. Tracy, "Disposal, destruction, and disarmament: Comparative analysis of US chemical weapon and weapons plutonium stockpile reductions," *Central European Journal of International and Security Studies* 17, 36 (2022)

C.L. Tracy, S. Park, M. Plevaka, E. Bogdanova, D. Popovich, "Opportunities for US-Russian collaboration on the safe disposal of nuclear waste," *Bulletin of the Atomic Scientists* 77, 146 (2021)

C.L. Tracy, D. Wright, "Modeling the performance of hypersonic boost-glide missiles," *Science & Global Security* 28, 135 (2020)

S. Park, A. Puccioni, **C.L. Tracy**, E. Serbin, R.C. Ewing, "Geologic analysis of the Democratic People's Republic of Korea's uranium resources and mines," *Science & Global Security* 28, 89 (2020)

N. Ulibarri, **C.L. Tracy**, R.J. McCarty, "Cleanup and complexity: nuclear and industrial contamination at the Santa Susana Field Laboratory, California," *Environmental Management* 65, 257 (2020)

C.L. Tracy, M.K. Dustin, R.C. Ewing, "Reassess New Mexico's nuclear-waste repository," *Nature* 529, 149 (2016)

SCHOLARLY PUBLICATIONS (PHYSICAL SCIENCE)

E.C. O'Quinn, **C.L. Tracy**, W.F. Cureton, R. Sachan, J.C. Neuefeind, C. Trautmann, M.K. Lang, "Multi-scale investigation of heterogeneous swift heavy ion tracks in stannate pyrochlore," *Journal of Materials Chemistry* A 9, 16982 (2021)

A.P. Solomon, **C.L. Tracy**, E.C. O'Quinn, D. Severin, M.K. Lang, "Transformations to amorphous and X-type phases in swift heavy ion-irradiated Ln_2O_3 and Mn_2O_3," *Journal of Applied Physics* 129, 225903 (2021)

W.F. Cureton, **C.L. Tracy**, M. Lang, "Review of swift heavy ion irradiation effects in CeO_2," *Quantum Beam Science* 5, 19 (2021)

C. Wang, **C.L. Tracy**, R.C. Ewing, "Radiation effects in $M_{n+1}AX_n$ phases," *Applied Physics Reviews* 7, 041311 (2020)

C. Wang, T. Yang, **C.L. Tracy**, C. Lu, H. Zhang, Y.J. Hu, L. Wang, L. Qi, L. Gu, Q. Huang, J. Zhang, J. Wang, J. Xue, R.C. Ewing, Y. Wang, "Disorder in $M_{n+1}AX_n$ phases at the atomic scale," *Nature Communications* 10, 622 (2019)

C. Wang, **C.L. Tracy**, S. Park, J. Liu, F. Ke, F. Zhang, T. Yang, S. Xia, C. Li, Y. Wang, Y. Zhang, W.L. Mao, R.C. Ewing, "Phase transformations of Al-bearing high-entropy alloys $Al_xCoCrFeNi$ (x = 0, 0.1, 0.3, 0.75, 1.5) at high pressure," *Applied Physics Letters* 114, 091902 (2019)

W.F. Cureton, R.I. Palomares, **C.L. Tracy**, E.C. O'Quinn, J. Walters, M. Zdorovets, R.C. Ewing, M. Toulemonde, M. Lang, "Effects of irradiation temperature on the response of CeO_2, ThO_2, and UO_2 to highly ionizing radiation," *Journal of Nuclear Materials* 525, 83 (2019)

C.L. Tracy, C. Chen, S. Park, M.L. Davisson, R.C. Ewing, "Measurement of UO_2 surface oxidation using grazing-incidence x-ray diffraction: Implications for nuclear forensics," *Journal of Nuclear Materials* 502, 68 (2018)

C. Chen, **C.L. Tracy**, C. Wang, M. Lang, R.C. Ewing, "Initial stages of ion beam-induced phase transformations in Gd_2O_3 and Lu_2O_3," *Applied Physics Letters* 112, 073904 (2018)

W.F. Cureton, R.I. Palomares, J. Walters, **C.L. Tracy**, C. Chen, R.C. Ewing, G. Baldinozzi, J. Lian, C. Trautmann, M. Lang, "Grain size effects on irradiated CeO_2, ThO_2, and UO_2," *Acta Materialia* 160, 47 (2018)

S. Park, D.R. Rittman, **C.L. Tracy**, K.W. Chapman, F. Zhang, C. Park, S.N. Tkachev, E. O'Quinn, J. Shamblin, M. Lang, W.L. Mao, R.C. Ewing, "A_2TiO_5 (A = Dy, Gd, Er, Yb) at high pressure," *Inorganic Chemistry* 57, 2269 (2018)

S. Park, **C.L. Tracy**, F. Zhang, C. Park, C. Trautmann, S.N. Tkachev, M. Lang, W.L. Mao, R.C. Ewing, "Radiation-induced disorder in compressed lanthanide zirconates," *Physical Chemistry Chemical Physics* 20, 6187 (2018)

D.R. Rittman, **C.L. Tracy**, C. Chen, J.M. Solomon, M. Asta, M.L. Mao, S.M. Yalisove, R.C. Ewing, "Phase transformation pathways of ultrafast-laser-irradiated Ln_2O_3 (Ln = Er-Lu)," *Physical Review B* 97, 024104 (2018)

S. Park, **C.L. Tracy**, F. Zhang, R.I. Palomares, C. Park, C. Trautmann, M. Lang, W.L. Mao, R.C. Ewing, "Swift-heavy ion irradiation response and annealing behavior of A_2TiO_5 (A = Nd, Gd, and Yb)," *Journal of Solid State Chemistry* 258, 108 (2018)

C.L. Tracy, M. Lang, F. Zhang, S. Park, R.I. Palomares, R.C. Ewing, "Review of recent experimental results on the behavior of actinide-bearing oxides and related materials in extreme environments," *Progress in Nuclear Energy* 104, 342 (2018)

J.S. Shamblin, **C.L. Tracy**, R.I. Palomares, E.C. O'Quinn, R.C. Ewing, J. Neuefeind, M. Feygenson, J. Behrens, C. Trautmann, M. Lang, "Similar local order in disordered fluorite and aperiodic pyrochlore structures," *Acta Materialia* 144, 60 (2018)

C. Wang, T. Yang, **C.L. Tracy**, J. Xiao, S. Liu, Y. Fang, Z. Yan, W. Ge, J. Xue, J. Zhang, J. Wang, Q. Huang, R.C. Ewing, Y. Wang, "Role of the X and n factors in ion-irradiation induced phase transformations of $M_{n+1}AX_n$ phases," *Acta Materialia* 144, 432 (2018)

C.L. Tracy, S. Park, D.R. Rittman, S.J. Zinkle, H. Bei, M. Lang, R.C. Ewing, W.L. Mao, "High pressure synthesis of a hexagonal close-packed phase of the high-entropy alloy CrMnFeCoNi," *Nature Communications* 8, 15634 (2017)

K.M. Turner, **C.L. Tracy**, W.L. Mao, R.C. Ewing, "Lanthanide stannate pyrochlores ($Ln_2Sn_2O_7$; Ln = Nd, Gd, Er) at high pressure," *Journal of Physics: Condensed Matter* 29, 504005 (2017)

R.I. Palomares, J. Shamblin, **C.L. Tracy**, J. Neuefeind, R.C. Ewing, C. Trautmann, M. Lang, "Defect accumulation in swift heavy ion-irradiated CeO_2 and ThO_2," *Journal of Materials Chemistry* A 5, 12193 (2017)

K.M. Turner, D.R. Rittman, R.A. Heymach, **C.L. Tracy**, M.L. Turner, A.F. Fuentes, W.L. Mao, R.C. Ewing, Pressure-induced structural modifications of rare-earth hafnate pyrochlore," *Journal of Physics: Condensed Matter* 29, 255401 (2017)

R.I. Palomares, **C.L. Tracy**, J. Neuefeind, R.C. Ewing, C. Trautmann, M. Lang, "Thermal defect annealing of swift heavy ion irradiated ThO_2," *Nuclear Instruments and Methods in Physics Research B* 405, 15 (2017)

D.R. Rittman, S. Park, **C.L. Tracy**, L. Zhang, R.I. Palomares, M. Lang, A. Navrotsky, W.L. Mao, R.C. Ewing, "Structure and bulk modulus of Ln-doped UO_2 (Ln = La, Nd) at high pressure," *Journal of Nuclear Materials* 490, 28 (2017)

F.X. Zhang, **C.L. Tracy**, J. Shamblin, R.I. Palomares, M. Lang, S. Park, C. Park, S. Tkachev, R.C. Ewing, "Pressure-induced phase transitions of β-type pyrochlore $CsTaWO_6$," *RSC Advances* 6, 94287 (2016)

C.L. Tracy, J. Shamblin, S. Park, F. Zhang, C. Trautmann, M. Lang, R.C. Ewing, "Role of composition, bond covalency, and short-range order in the disordering of stannate pyrochlores by swift heavy ion irradiation," *Physical Review B* 94, 064102 (2016)

J. Shamblin, **C.L. Tracy**, R.C. Ewing, F. Zhang, W. Li, C. Trautmann, M. Lang, "Structural response of titanate pyrochlores to swift heavy ion irradiation," *Acta Materialia* 117, 207 (2016)

J. Shamblin, M. Feygenson, J. Neuefeind, **C.L. Tracy**, F. Zhang, S. Finkeldei, D. Bosbach, H. Zhou, R.C. Ewing, M. Lang, "Probing disorder in isometric pyrochlore and related complex oxides," *Nature Materials* 15, 507 (2016)

C.L. Tracy, M. Lang, D. Severin, M. Bender, C. Trautmann, R.C. Ewing, "Anisotropic expansion and amorphization of Ga_2O_3 irradiated with 946 MeV Au ions," *Nuclear Instruments and Methods in Physics Research B* 374, 40 (2016)

F.X. Zhang, **C.L. Tracy**, M. Lang, R.C. Ewing, "Stability of fluorite-type $La_2Ce_2O_7$ under extreme conditions," *Journal of Alloys and Compounds* 674, 168 (2016)

C.L. Tracy, M. Lang, F. Zhang, C. Trautmann, R.C. Ewing, "Phase transformations in Ln_2O_3 materials irradiated with swift heavy ions," *Physical Review B* 92, 174101 (2015)

M.K. Lang, **C.L. Tracy**, R.I. Palomares, F.X. Zhang, D. Severin, M. Bender, C. Trautmann, C. Park, V. Prakapenka, V.A. Skuratov, R.C. Ewing, "Characterization of ion-induced radiation effects in nuclear materials using synchrotron x-ray techniques," *Journal of Materials Research* 30, 1366 (2015)

D.R. Rittman, **C.L. Tracy**, A.B. Cusick, M.J. Abere, B. Torralva, R.C. Ewing, S.M. Yalisove, "Ultrafast laser and swift heavy ion irradiation: Response of Gd_2O_3 and ZrO_2 to intense electronic excitation," *Applied Physics Letters* 106, 171914 (2015)

S. Park, M. Lang, **C.L. Tracy**, J. Zhang, F. Zhang, C. Trautmann, M.D. Rodriguez, P. Kluth, R.C. Ewing, "Response of $Gd_2Ti_2O_7$ and $La_2Ti_2O_7$ to swift-heavy ion irradiation and annealing," *Acta Materialia* 93, 1 (2015)

R.I. Palomares, **C.L. Tracy**, F. Zhang, C. Park, D. Popov, C. Trautmann, R.C. Ewing, M. Lang, "In situ defect annealing of swift heavy ion irradiated CeO_2 and ThO_2 using synchrotron X-ray diffraction and a hydrothermal diamond anvil cell," *Journal of Applied Crystallography* 48, 711 (2015)

C.L. Tracy, M. Lang, J.M. Pray, F. Zhang, D. Popov, C. Park, C. Trautmann, M. Bender, D. Severin, V.A. Skuratov, R.C Ewing, "Redox response of actinide materials to highly-ionizing radiation," *Nature Communications* 6, 6133 (2015)

S. Park, M. Lang, **C.L. Tracy**, F. Zhang, C. Trautmann, Z. Wang, R.C. Ewing, "Synchrotron x-ray diffraction analysis of gadolinium and lanthanum titanate oxides irradiated by xenon and tantalum swift heavy ions," *MRS Proceedings* 1743, (2015)

M. Lang, M. Toulemonde, J. Zhang, F. Zhang, **C.L. Tracy**, J. Lian, Z. Wang, W.J. Weber, D. Severin, M. Bender, C. Trautmann, R.C. Ewing, "Swift heavy ion track formation in $Gd_2Zr_{2-x}Ti_xO_7$ pyrochlore: Effect of electronic energy loss," *Nuclear Instruments and Methods in Physics Research B* 336, 102 (2014)

F.X. Zhang, M. Lang, **C.L. Tracy**, R.C. Ewing, D.J. Gregg, G.R. Lumpkin, "Incorporation of uranium in pyrochlore oxides and pressure-induced phase transitions, *Journal of Solid State Chemistry* 219," 49 (2014)

C.L. Tracy, J.M. Pray, M. Lang, D. Popov, C. Park, C. Trautmann, R.C. Ewing, "Defect accumulation in ThO_2 irradiated with swift heavy ions," *Nuclear Instruments and Methods in Physics Research B* 326, 169 (2014)

S. Park, M. Lang, **C.L. Tracy**, J. Zhang, F. Zhang, C. Trautmann, P. Kluth, M.D. Rodriguez, R.C. Ewing, "Swift heavy ion irradiation-induced amorphization of $La_2Ti_2O_7$," *Nuclear Instruments and Methods in Physics Research B* 326, 145 (2014)

M. Lang, F. Zhang, J. Zhang, **C.L. Tracy**, A.B. Cusick, J. VonEhr, Z. Chen, C. Trautmann, R.C. Ewing, "Swift heavy ion-induced phase transformation in Gd_2O_3," *Nuclear Instruments and Methods in Physics Research B* 326, 121 (2014)

C.L. Tracy, M. Lang, J. Zhang, F. Zhang, Z. Wang, R.C. Ewing, "Structural response of A_2TiO_5 (A = La, Nd, Sm, Gd) to swift heavy ion irradiation," *Acta Materialia* 60, 4477 (2012)

OP-EDS, COMMENTARY, AND REPORTS

D. Wright, **C.L. Tracy**, "Drag race: Hypersonic threats are slow enough for US missile defenses," *Defense News*, 8 December 2023

D. Wright, **C.L. Tracy**, "Over-hyped: The physics and hype of hypersonic weapons," *Scientific American* (translated to Spanish in *Investigación y Ciencia*), August 2021

C.L. Tracy, "Slowing the hypersonic arms race: A rational approach to an emerging missile technology," Union of Concerned Scientists report, 5 May 2021

D. Wright, **C.L. Tracy**, "Why hypersonic weapons cannot live up to their hype," *The Hill*, 2 March 2021

C.L. Tracy, D. Wright, "Don't believe the hype about hypersonic missiles," *IEEE Spectrum*, 5 February 2021

M. Polleri, **C.L. Tracy**, E. Likhacheva, E. Stepnykh, "Improving the communication of risks before, during, and after a nuclear accident," *Bulletin of the Atomic Scientists*, 31 August 2020

V. Kostikov, A. Kudriavtseva, **C.L. Tracy**, "The future of global nuclear power: which countries will be the most important in leading a significant expansion of global nuclear power?" *Bulletin of the Atomic Scientists*, 20 June 2019

C.L. Tracy, "Defining disarmament: the challenge of eliminating fissile materials," *CSIS Nuclear Network*, 30 July 2018

C.L. Tracy, M. Lang, R.C. Ewing, "Behavior of actinide oxides under extreme environments," *Actinide Research Quarterly*, November 2016

POLICY BRIEFINGS

Pacific Center for Island Security, Hagåtña, Guam, Aug 2023
"Missile defense in Guam"

Council for Security Cooperation in the Asia-Pacific (CSCAP) Nuclear Energy Experts Group, Stanford, USA, September 2022
"Safeguarding spent nuclear fuel"

UK Ministry of Defense: Development, Concepts and Doctrine Centre, Chief of the Defence Staff Strategy Forum, Cambridge, UK, Feb 2022
"Hypersonics – implications for UK Defence?"

US congressional offices, Washington, DC, USA, October 2020
"The hype on hypersonic weapons"

United Nations First Committee: 74th session, UN Office of Disarmament Affairs panel, New York, USA, October 2019
"Hypersonic weapons: a challenge and opportunity for strategic arms control"

The National Academies of Sciences, Engineering, and Medicine: Committee on Disposal of Surplus Plutonium in the Waste Isolation Pilot Plant, Washington, DC, USA, April 2019
"Feasibility and risks of human intrusion in WIPP"

INVITED TALKS

IEEE International Symposium on Ethics in Engineering, Science, and Technology, West Lafayette, USA, May 2023
"The ethics of weapons technology development"

Naval Postgraduate School, Meyer Scholar Seminar, August 2022
"Missile hype: Modelling the performance of hypersonic boost-glide weapons"

Global Governance Institution (Beijing), May 2022
"A hypersonic revolution? Implications of hypersonic missile use in the Russo-Ukrainian War"

Center for Strategic and International Studies (CSIS), Project on Nuclear Issues, April 2022
"Emerging technologies: Hypersonic weapons"

German Physical Society (DPG) Spring Meeting, Erlangen, Germany, March 2022
"Missile hype: Modelling the performance of hypersonic boost-glide weapons"

Sandia National Laboratory, Bay Area Strategic Engagement Seminar, February 2022
"Missile hype: Modelling the performance of hypersonic boost-glide weapons"

University of Hawai'i, Mānoa, Department of Physics and Astronomy, April 2021
"Hype and the hypersonic arms race: Modelling the performance of hypersonic boost-glide missiles"

University of Cincinnati, Science Policy Ambassadors Series, March 2021
"Working as a scientist at the science/policy interface"

Aerospace Corporation, Center for Space Policy and Strategy, February 2021
"The hypersonic missile debate"

University of Massachusetts, Amherst, Department of Physics, February 2021
"Missile hype and the hypersonic arms race: Modelling the performance of hypersonic boost-glide missiles"

Cato Institute, Restraint and Emergent Technology Series, February 2021
"Missile hype and the hypersonic arms race: Modelling the performance of hypersonic boost-glide missiles"

Carnegie Mellon University, Department of Engineering and Public Policy, November 2020
"Missile hype and the hypersonic arms race: Computational modelling of hypersonic missile performance"

Princeton University, Program on Science & Global Security, September 2020
"Modelling the performance of hypersonic boost-glide missiles"

Middlebury Institute of International Studies, James Martin Center for Nonproliferation Studies, July 2019
"Dropping the bomb: The challenges of US chemical and nuclear weapon stockpile reductions"

Massachusetts Institute of Technology, Laboratory for Nuclear Security and Policy, January 2019
"Atomic structure as a signature for nuclear forensics and archaeology"

Plutonium Futures—The Science 2018, San Diego, USA, September 2018
"Effects of irradiation-induced electronic excitation on simple and complex oxides"

29th International Summer Symposium on Science and World Affairs, Darmstadt, Germany, July 2017
"Feasibility of the clandestine recovery of weapons plutonium from a geological repository"

19th International Conference on Radiation Effects in Insulators, Versailles, France, July 2017
"Synthesis of metastable oxide phases by dense electronic excitation"

23rd International Conference on the Applications of Accelerators in Research and Industry, San Antonio, USA, May 2014
"Effects of composition on the response of oxides to highly ionizing radiation"

OTHER CONFERENCE PRESENTATIONS

21st International Conference on Radiation Effects in Insulators, Fukuoka, Japan, September 2023
"Formation of X-type phases in binary and ternary oxides irradiated with swift heavy ions"

Materials Research Society Spring Meeting, Phoenix, USA, April 2018
"Measurement of UO_2 surface oxidation using grazing-incidence x-ray diffraction: Implications for nuclear forensics"

Materials Research Society Spring Meeting, Phoenix, USA, April 2018
"Role of composition, bond covalency, and short-range order in the disordering of stannate pyrochlores by swift heavy ion irradiation"

Materials Research Society Spring Meeting, Phoenix, USA, April 2017
"High pressure phase stability of transition metal high-entropy alloys"

20th International Conference on Ion Beam Modification of Materials, Wellington, New Zealand, November 2016
"Synthesis of metastable lanthanide sesquioxide phases by irradiation with swift heavy ions"

Geological Society of America Annual Meeting, Baltimore, USA, November 2015
"Redox response of actinide oxides and oxyhydroxides to highly ionizing radiation"

9th International Symposium on Swift Heavy Ions in Matter, Darmstadt, Germany, May 2015
"Systematic study of the phase behavior of f-block oxides irradiated with swift heavy ions"

European Materials Research Society Spring Meeting, Lille, France, May 2015
"Response of lanthanide and actinide oxides to swift heavy ion irradiation"

Plutonium Futures—The Science 2014, Las Vegas, USA, September 2014
"Structural transformations in actinide oxides under extreme conditions"

Materials Research Society Spring Meeting, San Francisco, USA, April 2014
"Redox response of actinide materials to highly ionizing radiation"

Fuel Cycle Technologies Annual Review Meeting, DOE Office of Nuclear Energy, Argonne, USA, November 2013
"Structural and chemical response of actinide materials to highly ionizing radiation"

17th International Conference on Radiation Effects in Insulators, Helsinki, Finland, July 2013
"Swift heavy ion irradiation of ceria and thoria"

8th International Symposium on Swift Heavy Ions in Matter, Kyoto, Japan, October 2012
"Compositional effects on track formation in A_2TiO_5 (A = La, Nd, Sm, Gd) irradiated with swift heavy ions"

TEACHING

Blueprint to Battlefield: Weapons Technology and Sociotechnical Change Fall 2022, 2023
Master's in International Policy Program: INTLPOL 296, Stanford University

Interschool Honors Program in International Security Studies AY 21-22, 22-23, 23-24
Institute for International Studies: IIS 199, Stanford University

Materials Laboratory II Winter 2014
Dept. of Materials Science & Engineering: MSE 365, University of Michigan

Research Problems in Materials Science and Engineering Winter 2013
Dept. of Materials Science & Engineering: MSE 490, University of Michigan

MENTORING AND GUEST LECTURES

Technology & Strategic Planning Winter 2022
Dept. of National Security Affairs: NS 4253, Naval Postgraduate School
Guest lecturer: "Emerging physical technologies"

Sustainable Energy Systems Fall 2021
Dept. of Nuclear Engineering: NUCE 497, Penn. State University
Guest lecturer: "Nuclear safety and security"

Nuclear Fusion Project Winter 2021, Spring 2021
Early Career Program mentor

Research or Independent Study Fall 2019, Spring 2020
Dept. of Chemistry: CHEM 250, Wellesley College
Research mentor

Stanford Graduate Summer Institute Fall 2017
Stanford University
Guest lecturer: "Nuclear energy: Risks and rewards"

International Security in a Changing World Winter 2016
Dept. of Political Science: PS 114S, Stanford University
Simulation organizer

Mathematics, Engineering, and Science Achievement Program Winter, Spring 2008
University of California, Davis
Undergrad tutor

DISSERTATION AND THESIS COMMITTEES

Alex Solomon, PhD: University of Tennessee, Knoxville, Department of Nuclear Engineering 2023
"Investigating metastable phases in ion-irradiated binary oxides"

William Cureton, PhD: University of Tennessee, Knoxville, Department of Nuclear Engineering 2021
"Nuclear fuel materials under extremes: Redox behavior and resulting defect structure"

Alex Solomon, MS: University of Tennessee, Knoxville, Department of Nuclear Engineering 2020
"Transformations in swift heavy ion-irradiated Ln_2O_3 and Mn_2O_3"

SERVICE

Nuclear Security Fellowship Selection Committee 2023, 2024
Stanford University, Center for International Security and Cooperation (CISAC)

Undergrad Honors Program Selection Committee 2022, 2023, 2024
Stanford University, Center for International Security and Cooperation (CISAC)

Social Science Fellowship Selection Committee 2022
Stanford University, Center for International Security and Cooperation (CISAC)

Research Report Reviewer 2022
UK Parliamentary Office of Science and Technology (POST)

Bing Honors College Cohort Lead 2021, 2022
Stanford University

Research Proposal Reviewer 2021
Stanford Synchrotron Radiation Lightsource (SSRL), SLAC National Accelerator Laboratory

Research Proposal Reviewer 2017
National Centre of Science and Technology Evaluation, Kazakhstan

JOURNAL REFEREEING

Acta Materialia
Applied Physics Letters
Chemical Communications
Corrosion Science
Crystals
Inorganic Chemistry Frontiers
International Journal of Hydrogen Energy
International Security
Journal for Peace and Nuclear Disarmament
Journal of Alloys and Compounds
Journal of Applied Physics
Journal of the European Ceramic Society
Journal of Materials Science & Technology
Journal of Nuclear Materials
Journal of Physical Chemistry
Journal of Radioanalytical & Nuclear Chemistry
Journal of the Australian Ceramic Society
Nuclear Instruments and Methods in Physics Research
Phillipine Journal of Science
Physica Status Solidi
Physical Chemistry Chemical Physics
Science & Global Security
Scripta Materialia

WORKSHOPS

Missile Dialogue Initiative, German Federal Foreign Office and Intitute for International and Strategic Studies, Washington, DC, USA, April 2023

Pugwash Workshop on Hypersonic Weapons, Pugwash Conferences on Science and World Affairs, Geneva, Switzerland, December 2019

3rd - 7th Moscow Engineering and Physics Institute (MEPhI) & Stanford University Young Professionals Nuclear Forum, Palo Alto, USA and Moscow, Russia, May 2018-November 2020

RAND Military Immersion Map Exercise, RAND Corporation, Washington, DC, USA, February 2019

Nuclear Scholars Initiative, Center for Strategic and International Studies, Washington, DC, USA, January-June 2018

New Nuclear Imaginaries, Harvard University, Program on Science, Technology, and Society, Cambridge, USA, April 2017

US Engagement in the Humanitarian Consequences of Nuclear Weapons Debate, Stanford University, Palo Alto, USA, February 2017

Workshop on Communicating Science to Policy Leaders and the Interested Public, Bulletin of the Atomic Scientists & Stanford University, Palo Alto, USA, May 2016

10th Los Alamos Neutron Science Center School on Neutron Scattering: Geosciences and Materials in Extreme Environments, Los Alamos, USA, January 2014

HONORS AND AWARDS

Mid-Career Cadre, Center for Strategic and International Studies (CSIS) 2022

Kendall Fellowship, Union of Concerned Scientists 2019

Stanton Nuclear Security Fellowship, Stanton Foundation 2018

Nuclear Security Postdoctoral Fellowship, MacArthur Foundation 2015

Young Scientist Award, European Materials Research Society (E-MRS) 2015

Innovations in Fuel Cycle Research Award, US DOE, Office of Nuclear Energy 2013

Graduate Research Fellowship, US National Science Foundation (NSF) 2012

Rackham Merit Fellowship, University of Michigan 2011

1st Place, Science and Energy Research Challenge, US DOE, Office of Science 2009

Poster Award, Los Alamos National Laboratory Student Symposium 2009, 2010

Dean's List, University of California, Davis 2008 - 2011

Engineering Scholarship, AT&T Foundation 2007

MEDIA COVERAGE

New York Times
Washington Post
Wall Street Journal
BBC World News
Financial Times
Business Insider
Reuters
CNN
Politico
Vice News
The Intercept
The Week
South China Morning Post
The Moscow Times
Agence France-Presse
France 24
Le Journal de Montréal
Sydney Morning Herald
Nine News
The Economic Times
The Hindu
The Diplomat
Popular Mechanics
Aviation Week
Spektrum der Wissenschaft
IR Insider
National Defense Magazine
Defense News
The Defense Post
Breaking Defense
Just Security
Materials Performance
Tribology & Lubrication Technology