Miloš Ivo Atz

Contact Information

Argonne National Laboratory
9700 South Cass Avenue, Building 208, Room A106
Lemont, IL 60439 USA

mobile: (860) 918-6759
e-mail: matz [at] anl [dot] gov
website: https://milosatz.github.io

Ph.D.

University of California, Berkeley, Nuclear Engineering **Aug 2014 – Sep 2019**

Dissertation: *Methodologies for the evaluation of nuclear waste management strategies and applications to advanced fuel cycles*
Advisor: Professor Massimiliano Fratoni

M.S.

University of California, Berkeley, Nuclear Engineering **Aug 2014 – May 2016**

Thesis: *Effect of initial enrichment and discharge burnup on the minimum critical mass of far-field depositions of fissile material from LWR spent fuel*
Advisor: Professor Joonhong Ahn

B.S.

University of Connecticut, Chemical Engineering **Aug 2010 – May 2014**

Thesis: *Mechanism of insulin aggregation: Applied to Alzheimers disease*
Advisor: Professor Mu-Ping Nieh

Research Experience

Argonne National Laboratory, Lemont, IL **Sep 2020 – present**
Nuclear Engineer, Nuclear Science and Engineering Division
Continued development of DASSH subchannel TH software to calculate core-wide temperatures and inform orificing strategies in support of the Versatile Test Reactor core design. Engage in research and development activities related to advanced reactor core design & analysis and fuel cycle & waste management planning.

Argonne National Laboratory, Lemont, IL **Sep 2019 – Aug 2020**
Postdoctoral Appointee, Nuclear Science and Engineering Division
Development of DASSH subchannel TH software in support of the Versatile Test Reactor core design.

University of California, Berkeley, Berkeley, CA **Aug 2014 – Sep 2019**
Graduate Research Assistant, Nuclear Waste Management Group
Implemented analysis tools to study the nuclear fuel cycle and waste management by leveraging the data produced in the DOE Fuel Cycle Evaluation and Screening study.

University of Connecticut, Storrs, CT **Sep 2012 – May 2014**
Undergraduate Research Assistant, Self-Assembled Functional Nanomaterials Lab
Studied reversibility of insulin dimerization as model for potential reversal of Alzheimer's disease.

Idaho National Laboratory, Idaho Falls, ID **Jun – Aug 2013**
SULI Research Intern, Energy Resource Recovery and Sustainability Department
Developed thermal models for biofuel feedstock degradation and cold crucible induction melters.

UTC Power, South Windsor, CT **Jun – Aug 2012**
Cell Stack Research Intern
Studied subscale fuel cells to assess feasibility of replacing purge gas with cheaper alternative. Performed thermal conductivity tests on fuel cell components to correct model correlations.

Honors and Awards

Impact Argonne Award (shared) for contributions to VTR CD-1 milestone **November 2020**
First place, MeV School final team project presentation **Summer 2020**
UC Berkeley Nuclear Engineering Joonhong Ahn Award **Spring 2019**
Roy G. Post Nuclear Waste Management Graduate Scholarship **Spring 2019**

National Science Foundation Graduate Research Fellowship	**2015 – 2019**
First place, Nuclear Innovation Bootcamp	**Summer 2016**
UC Berkeley Nuclear Engineering Thomas Pigford Award	**Spring 2016**
Nuclear Regulatory Commission Graduate Fellowship	**Spring 2015**
United Technologies Corporation Engineering Scholarship	**2013 – 2014**
Honorable Mention (x2), Idaho National Laboratory Intern Poster Competition	**Summer 2013**
University of Connecticut Academic Excellence Scholarship	**2010 – 2014**

Journal Publications

[1] A. Kasam-Griffith, **M. Atz**, T. Fei, Z. Zhong, M. Jarrett, F. Heidet. "VTR Core Design for Flexible Operations". **Nuclear Science and Engineering**. Submitted.

[2] **M. Atz**, A. Salazar, F. Hirano, M. Fratoni, J. Ahn. "Assessment of the potential for criticality in the far field of a used nuclear fuel repository". **Annals of Nuclear Energy** 124, pp 28-38, February 2019. DOI.

Conference Proceedings

[3] **M. Atz**, M. A. Smith, F. Heidet. "DASSH: Software for ducted assembly thermal hydraulics calculations". **Transactions of the American Nuclear Society** 123 pp. 1673-1676, November 2020.

[4] **M. Atz**, M. Fratoni. "Impact of interim storage on repository design options". Paper 27261. **International High-Level Radioactive Waste Management Conference (IHLRWM 2019)**, Knoxville, TN, April 2019.

[5] **M. Atz**, M. Fratoni. "A Python Package for Fuel Cycle and Waste Management Analysis". Paper 19545. **Proceedings of the Waste Management Symposium**, Phoenix, AZ, March 2019. URL.

[6] **M. Atz**, M. Fratoni. "Impact of partitioning and transmutation on the back end of the fuel cycle". **Proceedings of the OECD 15th International Exchange Meeting on Partitioning and Transmutation**, Manchester, UK, October 2018.

[7] A. Salazar, **M. Atz**, X. Liu, M. Fratoni. "The Criticality Safety Studies of Joonhong Ahn". **Transactions of the American Nuclear Society**, Vol. 116, San Francisco, CA, June 11-15, 2017.

[8] **M. Atz**, X. Liu, M. Fratoni, J. Ahn. "Material composition effects on far-field deposition minimum critical mass". **International High-Level Radioactive Waste Management Conference (IHLRWM 2017)**, Charlotte, NC, April 9-13, 2017. URL.

[9] **M. Atz**, X. Liu, M. Fratoni, J. Ahn. "Evaluation of minimum critical mass to inform performance requirement of partitioning and transmutation to eliminate criticality risk in a geologic repository". **Proceedings of the OECD 14th International Exchange Meeting on Partitioning and Transmutation**, San Diego, CA, October 2016. pp. 354-364. URL.

Technical Reports

[10] **M. Atz**, M. A. Smith, F. Heidet. "Ducted Assembly Steady-State Heat Transfer Software (DASSH) - User Guide". ANL/NSE-21/34 (2021). URL.

[11] **M. Atz**, M. A. Smith, F. Heidet. "Ducted Assembly Steady-State Heat Transfer Software (DASSH) - Theory Manual". ANL/NSE-21/33 (2021). URL.

[12] **M. Atz**, B. Feng. "Generic Activities and Milestones for Deploying Advanced Reactor Spent Fuel Management Facilities". ANL/NSE-21/28 (2021).

[13] A. G. Nelson, A. A. Kasam-Griffith, **M. I. Atz**, F. Heidet. "Performance of HALEU and HEU-Fueled Nuclear Thermal Propulsion Reactors". ANL/NSE-20/55 (2020).

[14] A. Kasam-Griffith, M. Jarrett, **M. Atz**, G. Aliberti. "Comparative analysis of the reference VTR conceptual core design". ECAR-5119 (2020).

[15] A. G. Nelson, M. A. Smith, **M. I. Atz**, F. Heidet. "Argonne Reactor Computation Code Verification – Phase 1 Achievements". ANL-VTR-58 (2020).

[16] A. Salazar, **M. Atz**, M. Fratoni. "Criticality Safety for Geological Disposal of Used Nuclear Fuel". Summary Report for the FY2016 for JAEA-UCBNE Collaboration (Area 2) UCB-NE-5157 (2017).

[17] X. Liu, A. Salazar, **M. Atz**, M. Fratoni, J. Ahn. "Preliminary Criticality Safety Assessment for Direct Disposal of Spent Nuclear Fuels". Summary Report for the FY2015 for JAEA-UCBNE Collaboration (Area 2) UCB-NE-5153 (2016).

[18] X. Liu, A. Salazar, **M. Atz**, M. Fratoni, J. Ahn. "Criticality Safety for Geological disposal of Fukushima Damaged Fuels". Summary Report for the FY2015 for JAEA-UCBNE Collaboration (Area 1) UCB-NE-5152 (2016).

[19] J. Ahn, X. Liu, **M. Atz**. "Preliminary Criticality Safety Assessment for Direct Disposal of Spent Nuclear Fuels". Summary Report for the FY2015 for JAEA-UCBNE Collaboration (Area 2) UCB-NE-5148 (2015).

Theses

[20] **M. Atz**. "Methodologies for the evaluation of nuclear waste management strategies and applications to advanced fuel cycles". PhD Dissertation, UC Berkeley (2019). URL.

[21] **M. Atz**. "Effect of initial enrichment and discharge burnup on the minimum critical mass of far-field depositions of fissile material from LWR spent fuel". Master's Report (Plan II) UCB-NE-5155 (2016).

[22] **M. Atz**, M. Li, G. Belfort, M.P. Nieh. "Mechanism of insulin aggregation: Applied to Alzheimers disease". University of Connecticut Honors Scholar Thesis, Paper 378, Chemical Engineering (2014). URL.

Posters

[23] K. Shield, **M. Atz**. "Nuclear Energy and Environmental Justice: As Bad as we Think?" **National Science Policy Symposium**, New York, NY, November 2018.

[24] **M. Atz**, M.P. Nieh, M. Li. "Understanding the early stage of insulin aggregation; applied to Alzheimers disease". **American Institute of Chemical Engineers Regional Student Conference**, Storrs, CT (2014).

[25] **M. Atz**, M.P. Nieh, M. Li. "Insulin as a Model System for Beta-Amyloid Protein Aggregation Reversibility". **American Institute of Chemical Engineers National Student Conference**, San Francisco, CA (2013).

[26] **M. Atz**, M. Plummer, I. Bonner, W. Smith. "Mathematical Simulation of Biodegradation in Corn Stover". Idaho National Laboratory Intern Poster Competition (2013).

Other Writing

[27] F. Heidet, **M. Atz**. "Why Crypto Mining Needs Nuclear Power". CoinDesk (2021). URL.

[28] **M. Atz**. "Understanding the Nuances of Nuclear Waste". Medium, Berkeley Nuclear Engineering (2017). URL.

[29] **M. Atz**. "Pioneering the future of nuclear energy innovation". Berkeley Energy & Resources Collaborative (2016). URL.

Invited Talks

Santa Clara University Physics Department, *Seminar* — **Jun 1, 2020**
NNSA University Program Review, Raleigh, NC, *NSSC Affiliate* — **Jun 4-6, 2019**
NSSC MSIM Schubert Review, Berkeley, CA, *NSSC Affiliate* — **Apr 23, 2019**

Teaching Experience

University of California, Berkeley, Dept. of Nuclear Engineering

Course organizer, *NE290E, Environmental Aspects of Nuclear Energy* — **Spring 2019**
Teaching Assistant, *NE124, Radioactive Waste Management* — **Spring 2016**
Teaching Assistant, *NE290E, Environmental Aspects of Nuclear Engineering* — **Fall 2015**

Guest lectures

NE124, Radioactive Waste Management

- Repository thermal management — **Apr 30, 2019**
- Criticality safety studies at UC Berkeley — **Apr 14, 2017**

NE100, Introduction to Nuclear Engineering

- Nuclear fuel cycle mass balances, radiation dose conversions — **Apr 24 & 26, 2018**

Volunteering and Service

Reviewer, Nuclear Engineering and Technology	
Member, EGS DEI Council	**Nov 2020 – present**
Member, MeV School Scientific Secretariat	**Summer 2021**
Vice President, Postdoctoral Society of Argonne	**Jan 2020 – Dec 2020**
Workshop Leader, Earth Action Initiative	**Spring 2018, Spring 2019**
UC Berkeley Nuclear Engineering Colloquia Review Committee	**Fall 2017 - Spring 2018**
Nuclear Innovation Bootcamp Planning Committee	**Spring 2017 - Summer 2018**
Summer Session Volunteer, The Painted Turtle	**Summer 2017, 2018**
Executive Committee, Nuclear Environmental Outreach Group	**Fall 2016 - Fall 2017**
Vice President, UConn Engineering Ambassadors	**Fall 2013 - Spring 2014**
Member, UConn Engineering Ambassadors	**Fall 2012 - Spring 2014**
UConn Engineering Dean Search Committee	**Fall 2013**
Representative, UConn Chemical Engineering ABET Review	**Fall 2013**
Student Interviewer, UConn Chemical Engineering Faculty Search	**Spring 2013**
Submitted testimony in support of CT Senate Bill no. 840	**Spring 2013**