

Nathan S. Ryan

CONTACT INFORMATION	Nuclear Fuel Cycle and Advanced Reactor Analyst <i>Oak Ridge National Laboratory</i> <i>Nuclear Energy and Fuel Cycle Division</i>	mobile: (708) 567-0002 e-mail: ryanns@ornl.gov website: nsryan.github.io
RESEARCH INTERESTS	Nuclear fuel cycle simulation and analysis, geographical information systems, spatial modeling, energy regulation, supply chain analysis, nuclear energy policy, hydrogen fuel, energy system modeling, advanced reactor multiphysics, multi-objective optimization, and scientific computation.	
RESEARCH EXPERIENCE	Oak Ridge National Laboratory , Oak Ridge, TN <i>Research Scientist</i> , <i>Graduate Summer Research Assistant</i> , <i>Reactor and Nuclear Fuel Cycle Analysis Group</i>	June 2025 – Present June 2024 – Aug 2024
	University of Illinois at Urbana-Champaign , Urbana, IL <i>Research Assistant, Nuclear Plasma and Radiological Engineering</i> <i>Undergraduate Research Assistant</i> Advanced Reactors and Fuel Cycles group.	Aug 2022 – May 2025 May 2020 – Aug 2022
MS	University of Illinois Urbana-Champaign , NUCLEAR, PLASMA, AND RADIOLOGICAL ENGINEERING	Aug 2022 – May 2025
BS	University of Illinois Urbana-Champaign , ENGINEERING PHYSICS	Aug 2019 – Aug 2022
HONORS AND AWARDS	NPPE, Students Award for Excellence in Graduate Service ANS, Student Sections Committee Commendation for Service and Leadership NPPE, Students Award for Excellence in Undergraduate Service UIUC, Dean's List Department of Physics, Excellence in Physics Award	2023 2023 2022 2020 2020
JOURNAL PUBLICATIONS	[1] A. M. Bachmann, R. Fairhurst-Agosta, Z. Richter, N. S. Ryan , and M. Munk. Enrichment dynamics for advanced reactor HALEU support. <i>EPJ Nuclear Sciences and Technologies</i> , 7:22, 2021. Publisher: EDP Sciences. URL: https://www.epj-n.org/articles/epjn/abs/2021/01/epjn210024/epjn210024.html , doi:10.1051/epjn/2021021	
REFEREED CONFERENCE ABSTRACTS	[2] N. S. Ryan , K. D. Huff, and M. Munk. Leu+ to haleu transitions in advanced reactor fuel cycles. In A. M. Bachmann, editor, <i>Technical Workshop on Fuel Cycle Simulation 2025 (TWFCFS 2025)</i> , 2025	
TECHNICAL REPORTS	[3] S. G. Dotson, A. M. Bachmann, Z. M. Richter, N. R. Panczyk, N. S. Ryan , A. C. Balla, and E. R. Fanning. Economic and Carbon Impacts of Potential Illinois Nuclear Plant Closures: The Cost of Closures. Technical Report UIUC-ARFC-2021-02, University of Illinois at Urbana-Champaign, Urbana, IL, May 2021. URL: github.com/arfc/2021-04-nm-illinois	
POSTER PRESENTATIONS	[4] N. S. Ryan and N. Panczyk. Using an energy model to demonstrate the potential impact of proactive nuclear activism. Poster presented at <i>American Nuclear Society Student Conference</i> , 2022. Champaign, IL [5] N. S. Ryan and J. W. Bae. Enrichment and core-loading versatility in cyclus reactors. Poster presented at ORNL Summer Symposium, 2024. Oak Ridge, TN	
OTHER PUBLICATIONS	[6] N. S. Ryan . LEU+ to HALEU nuclear fuel cycle transitions and dynamic reactor models. Master's thesis, University of Illinois at Urbana-Champaign, May 2025. URL: https://hdl.handle.net/2142/129324	

OPINION PIECES	[7] K. D. Huff and N. S. Ryan . What it will take to restart decommissioned US nuclear plants. A primer, Oct. 2024. URL: https://thebulletin.org/2024/10/what-it-will-take-to-restart-decommissioned-us-nuclear-plants-a-primer/	
INVITED TALKS	ORNL Research Symposium , Updates to time, power, and deployment in, advanced reactor fuel cycle modeling, <i>Speaker</i> .	March 27, 2025
	ANS U. Illinois , Presenting at a Conference, <i>Speaker</i> .	March 10, 2025
	ANS GL-Chicago , Cyclus, LEU+, and HALEU fuel cycles, <i>Presenter</i> .	January 30, 2025
	ANS U. Illinois , Perfecting a Conference Abstract, <i>Speaker</i> .	Dec 9, 2024
	ANS U. Illinois , How to Present at a Conference, <i>Speaker</i> .	March 13, 2023
	ANS U. Illinois , How to Create a Conference Abstract, <i>Speaker</i> .	Jan 23, 2023
	U. Illinois , Physics and Astronomy Convocation, <i>Speaker</i> .	May 15, 2022
	Tinley Park High School , Introduction to Nuclear Science & Careers, <i>Speaker</i> .	Jan 17, 2020
	TEDxYouth , Evolutionary Anthropology and Youth in Science, <i>Speaker</i> .	Feb 15, 2019
PANELS & WORKSHOPS	ANS Midwest , Attending your First Conference, <i>Panelist</i> .	November 9, 2024
	ANS Midwest , Nuclear Outreach with Social Media, <i>Workshop Lead</i> .	November 9, 2024
	Institute for Genomic Biology , Boundaries in Graduate School, <i>Panelist</i> .	Aug 24, 2023
	ANS , Social Media for Local and Student Section Members Webinar, <i>Panelist</i> .	Aug 3, 2023
	Memphis Rise Academy , Careers in Nuclear, <i>Panelist</i> .	May 31, 2023
	U. Tennessee, Knoxville , Navigating Conversations with Advisors, Managers, and Supervisors, <i>Moderator</i> .	April 14, 2023
SCIENTIFIC COMPUTING TEACHING	Computational Resource Access Network , Board of Directors	2022 – Present
	Introduction to Python, Numerical Methods, Parallel Programming, and Best Practices	
	Worldwide Youth in Science and Engineering , Urbana, IL	July 2022, 2023
	Introduction to Python, and Best Practices for Beginners	
SCIENTIFIC COMPUTING SKILLS	Coding Languages	Bash, C++, Python, HTML, CSS, L ^A T _E X, BibTeX, XML
	Build Systems	make, CMake, Docker
	Databases	SQL, SQLite, JSON, CSV
	Test Frameworks	PyTest
	Version Control	git
	Applications	Sphinx, Mathematica, PyTorch, Word, Excel, Powerpoint, cPanel
	Nuclear Codes	CYCLUS, Serpent, SCALE
PROFESSIONAL SERVICE	Member , Student Sections Committee, ANS	2023 – 2026
	Delegate , Nuclear Engineering Student Delegation	2023, 2024
	Vice Chair , Student Sections Committee, ANS	2023 – 2025
	Subcommittee Chair , Student and Young Member Liaison Committee, ANS	2023 – 2025
	Subcommittee Chair , Student Conference Committee, ANS	2022 – 2025
	Chair , Winter Meeting Student Program, ANS	2022
	Organizer , Young Professionals Congress, ANS	2022 – 2023
	Member , ANS CARES, ANS	2022 – 2026
	Public Relations Officer , U. Illinois ANS Student Section	2020 – 2022
	Coordinator , Engineering Outreach Bureau, Grainger Engineering Council	2020 – 2022
	Media Chair , 2022 ANS Student Conference	2019 – 2022
DEPARTMENTAL SERVICE	Committee Member , Diversity, Equity, and Inclusion Committee	2022 – 2025
	Committee Chair , Graduate Student Advisory Committee	2022 – 2023
	Camp Advisor , Worldwide Youth in Science and Engineering	2022 – 2024

REFERENCES

Available upon request