Jack W. Fletcher

https://www.linkedin.com/in/jack-fletcher-7ba49b171

Office: 185 Albany St., Ste. 139
Cambridge, MA 02139 jwfletch@mit.edu

Objective

To accelerate the commercialization of fusion energy and promote stewardship of nuclear resources.

Education

Massachusetts Institute of Technology — Expected: May 2027
Ph.D., Nuclear Science and Engineering: Fusion Neutronics
Minor: National Security Studies

Missouri University of Science and Technology — May 2022
B.S., Nuclear Engineering — **GPA: 4.0/4.0**
Minors: German, Math, Physics

Experience

Massachusetts Institute of Technology — Cambridge, MA
Graduate Research Assistant — Sep 2022—current
- Develop novel partially-deterministic methods to accelerate shutdown dose uncertainty quantification and material down-selection for tokamaks
- Examine the robustness of isotope supply chains to meet future demands from fusion

Los Alamos National Laboratory — Los Alamos, NM
Graduate Research Assistant — Jun 2022—Aug 2022
- Performed initial sensitivity and uncertainty analysis for a proposed reactor physics benchmark based on the historic Compact Nuclear Power Source experiment

Missouri University of Science and Technology — Rolla, MO
Undergraduate Research — Jan 2019—May 2022
- Contrasted variance reduction methods for Monte Carlo simulation of a pencil-beam gamma collimator and pixelated cadmium-zinc-telluride (CZT) detector
- Assessed impact of interpixel scattering within a pixelated CZT detector, and developed workflow to compensate for these effects in radiographs of advanced nuclear fuels

Oak Ridge National Laboratory — Oak Ridge, TN
Summer Undergraduate Laboratory Intern — Jun 2021—Aug 2021
- Performed coupled neutronics and thermal hydraulics analysis and optimization of a reduced-order fusion reactor model's blanket region using a genetic algorithm

Honors & Activities

Organizational Committee, American Nuclear Society Young Professionals Congress 2023
Operations Director, MIT Energy Night 2023
Member, John Adams Society (Harvard University), 2023-
Delegate, MIT Science Policy Initiative Executive Visit Days, 2023
Best Undergraduate Presentation in Fusion and Plasmas, American Nuclear Society Student Conference, 2022
Missouri S&T Mines and Metallurgy Academy Scholar, 2022
Barry Goldwater Scholar, 2021
IEEE Symposium on Fusion Engineering Best Student Paper Finalist, 2021
Best in Thermal Hydraulics, American Nuclear Society Student Conference, 2019
National Merit Scholar, 2017

Publications

1. Kilby, S. and Fletcher, J., et al. Multi-modal tomographic imaging system for poolside characterization of nuclear test fuels: Design considerations and studies. *Nuclear Instruments and Methods in Physics Research, Section A,* **1045**, 1 January 2023. *(Shared primary authorship)*.
2. Kilby, S., Fletcher, J., et. al. Comparison of an Analytical Variance Reduction Technique to Classical Monte Carlo Variance Reduction Techniques for High Aspect Ratio Pencil Beam Collimators. *Nuclear Instruments and Methods in Physics Research, Section A*, **1001**, 11 June 2021.