Contribution ID: **42** Type: **Invited Talk**

# Development of a Scalable Platform for Fusion Neutron Irradiation and Next Generation Nuclear Applications

*Thursday 31 July 2025 09:00 (40 minutes)*

In the 2nd half of the 20th century, research fission reactors were deployed across the world in the form of OPAL and TRIGA designs, among others. The profound positive effect on nuclear research into materials science, training, fundamental particle physics, and nuclear medicine still endures today. However, many of those old reactors have already come to the end of their life with very few still running and even fewer being built to replace those lost. Historically, there has been little resource put towards the development of a fusion-based research reactor equivalent as most attention is aimed at the noble goal of demonstrating the feasibility of fusion energy.

Our focus over the last few years has been on making neutrons available in an economical, reliable, and scalable form factor. Many of the old positive impact areas in science and engineering are still relevant for a fusion-based equivalent, but many new applications and next-generation opportunities are unlocked by this novel platform.
More specifically, the qualification of fusion reactor components and tritium breeding materials, medical radionuclide production, and nuclear waste transmutation are just a few of the most pressing challenges that can be addressed.

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**Session Classification:** Session 8