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MOLYBDENUM-99 PRODUCTION TECHNOLOGY DEVELOPMENT**

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**Progress Toward an LEU Fuel Cycle for Domestic Radioisotope  
Production from Fission Fragments**

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**ABSTRACT**

Niowave is in the process of optimizing an accelerator driven subcritical assembly and LEU based closed loop fuel cycle for a domestic radioisotope production facility. Niowave is in the unique position of possessing both the facilities and NRC license to pursue commercialization of this type of facility. The subcritical assembly will contain aluminum clad rods. Rods will be removed and processed in parallel batches. As rods are removed, they will be replaced with new ones. This poster will focus on Niowave's progress and challenges in demonstrating this closed-loop fuel cycle including dissolution of uranium metal and oxide targets, extraction of radioisotopes, and recovery of uranium to date. Additionally, Niowave is engaged with technical experts at both Argonne National Laboratory and Y-12 National Security Complex, to optimize then scale up processes and chemistries to maximize radioisotope extraction and fuel recovery while minimizing exposure.