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**PVD-based Manufacturing Process of Monolithic LEU Foil Targets
for ⁹⁹Mo Production**

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ABSTRACT

The complete fabrication of the cylindrical LEU foil target was demonstrated using a newly developed manufacturing method. Hereby, the uranium as well as the interlayer material is coated directly on the inside of the outer cladding cylinder. This process was realized by a cylindrical magnetron enhanced PVD technique (sputtering). The set-up was extensively parametrized and an algorithm was developed, which allows the calculation of the grown layer thickness in real time or to simulate different sputter procedures. By adjusting the process parameters, the mechanical properties of the produced foils, their thickness homogeneity and the material utilization were optimized. In this way, self-supporting uranium foils with a good mechanical strength and a high thickness homogeneity were produced. By the application of a suitable interlayer material, these uranium foils were easily separable from the aluminum cladding. The material utilization of the uranium sputter process was above 90%.