

**Mo-99 2015 TOPICAL MEETING ON
MOLYBDENUM-99 TECHNOLOGICAL DEVELOPMENT**

**AUGUST 31-SEPTEMBER 3, 2015
HILTON BOSTON BACK BAY
BOSTON, MASSACHUSETTS**

¹⁰⁰Mo to ⁹⁹Mo Production Target: Design Status and Test Results

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ABSTRACT

The Northstar Medical Technologies ⁹⁹Mo production scheme utilizes a 42 MeV electron beam on a ¹⁰⁰Mo target comprised of a stack of thin disks cooled with helium through narrow gaps between the disks. With 2.86 mA beam current on each end of the target, the total heat load is 154 kW (64% of the beam power) and the peak heat flux is nearly 1500 W/cm². Ongoing design and analysis studies to optimize performance are reported, as well as results from flow testing at LANL and an in-beam thermal test at ANL. Current design activities are focused on reducing the number of disks by grading the thickness as a function of depth into the target and optimizing the coolant gap width for optimal use of the new, larger blower configuration. Also reported are the description and performance measurements of the new blower now operational at LANL.