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Modernization of DARHT axis-I spinning wheel debris blocker

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The Dual-Axis Radiographic Hydrodynamic Test Facility (DARHT) uses a spinning wheel debris blocker as a crucial machine protection system to prevent target debris from the electron to X-ray conversion process from traveling upstream and damaging the accelerator. The spinning wheel in use on DARHT Axis-I consists of two spinning disks normal to the beamline, each with an open slit that crosses the beamline at frequencies of 50 Hz and 40 Hz, creating an opening at a beat frequency of 8 Hz allowing the electron beam to pass through and shut behind it. In this poster, we present steps taken to improve the reliability and performance of the spinning wheel, which include replacing legacy and custom diagnostic components with off-the-shelf hardware. We also present the challenges and solutions in testing and deploying these upgrades without disrupting operation of the accelerator.

Footnotes

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North America

Primary author: MASLOW, James (Los Alamos National Laboratory)

Co-authors: COLEMAN, Joshua (Los Alamos National Laboratory); KELEHAN, Tyler (Los Alamos National Laboratory); RODRIGUEZ, Victor (Los Alamos National Laboratory); KOGLIN, Jason (Los Alamos National Laboratory)

Presenter: MASLOW, James (Los Alamos National Laboratory)

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