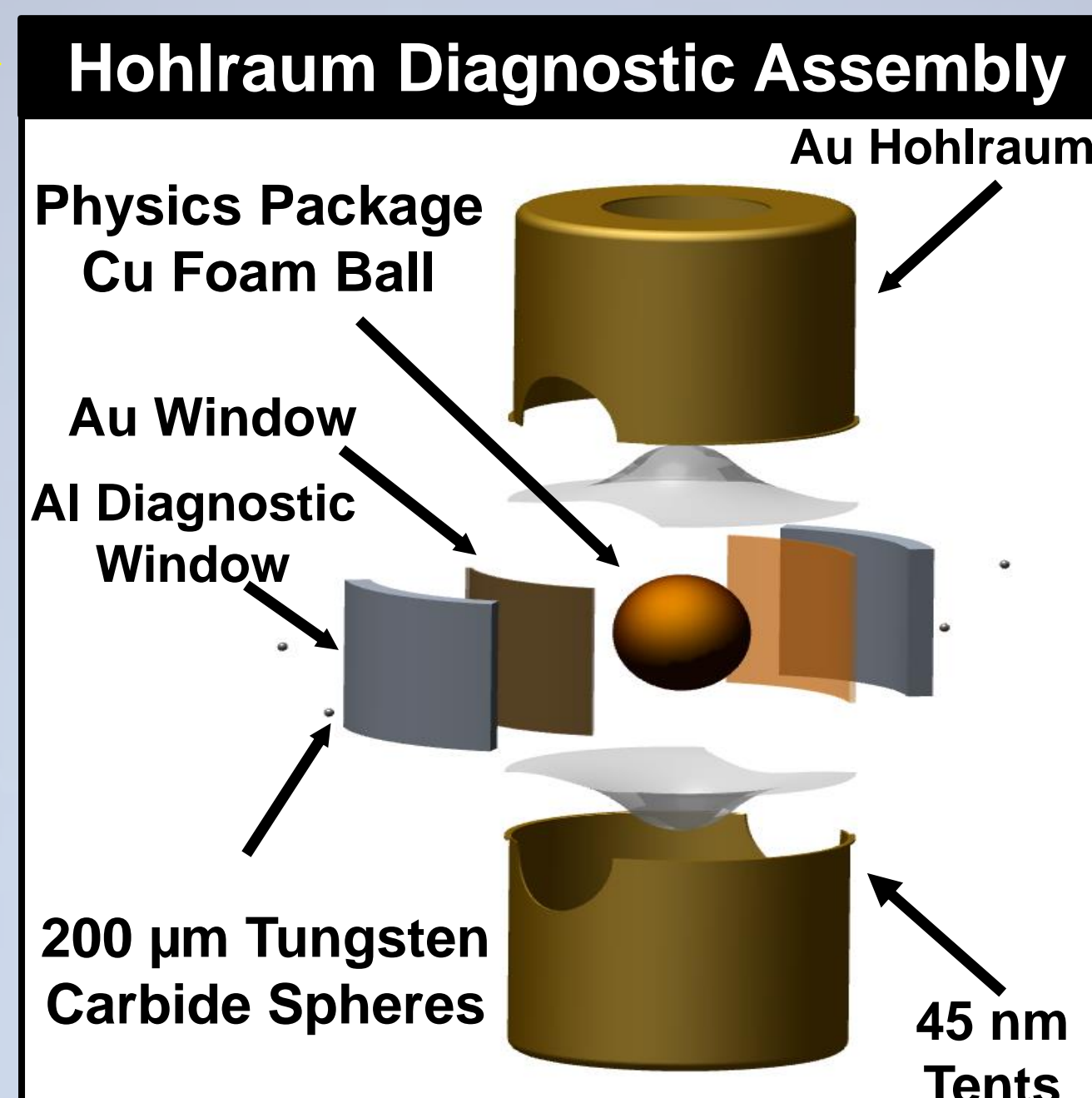
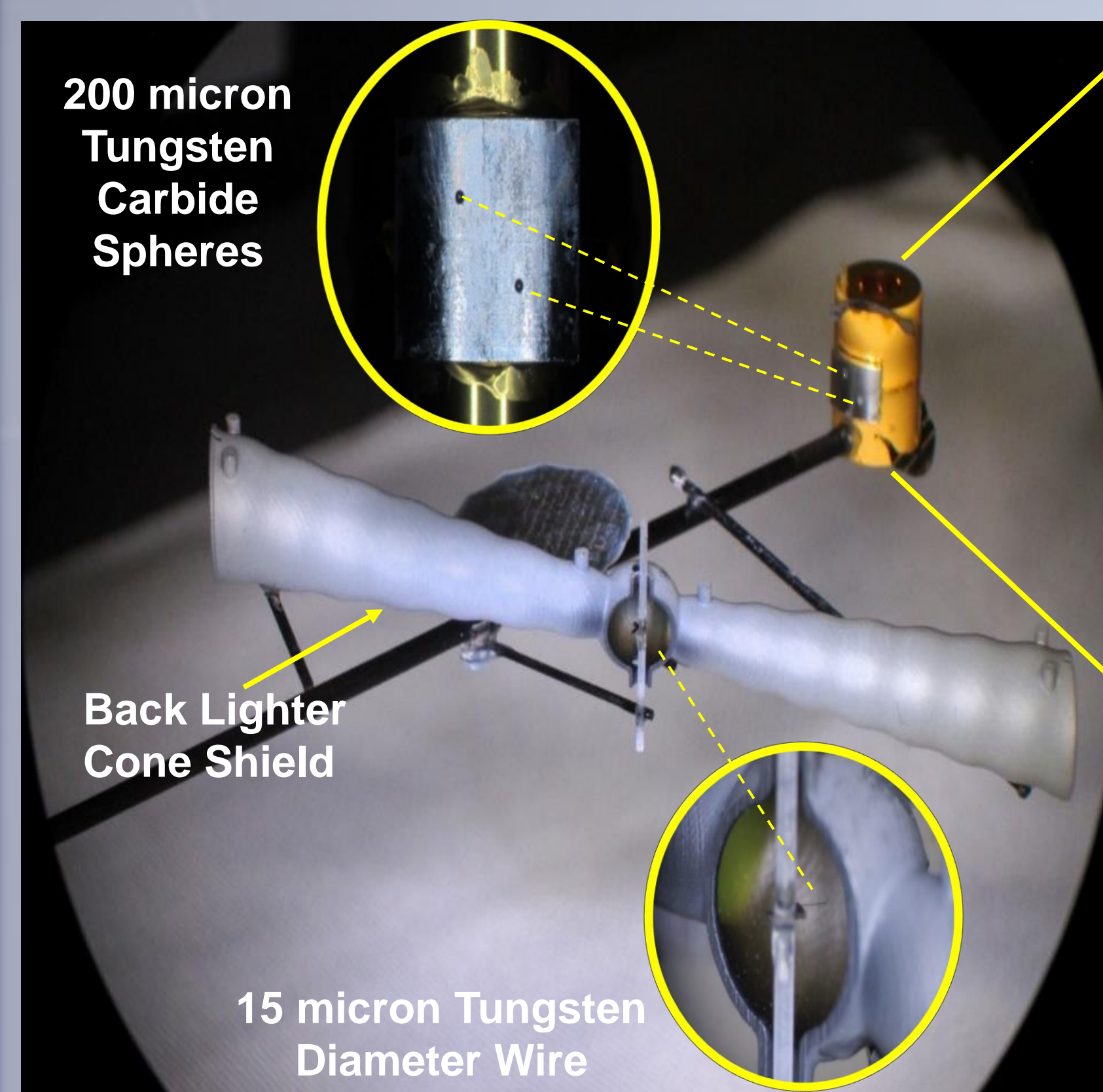




TARGET BACKGROUND

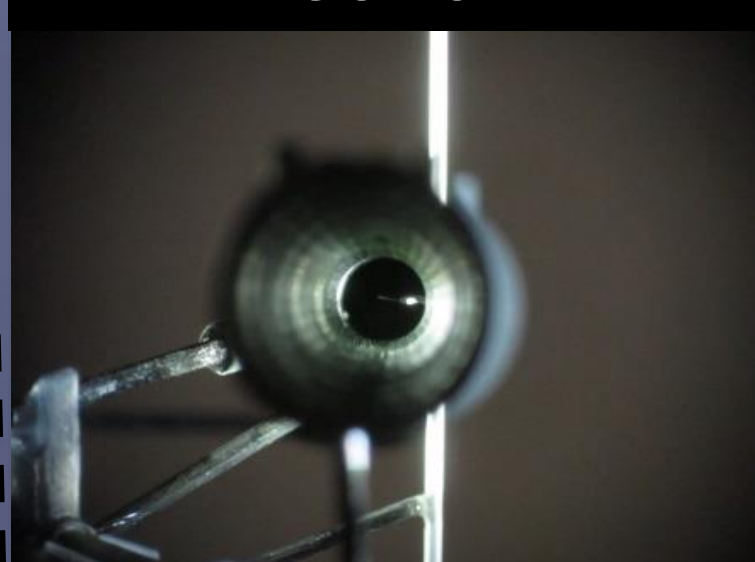
- Target experiments for the HED Complex Hydro program study complex hydrodynamic phenomena measured at higher pressures and velocities using Advanced Radiographic Capability (ARC).
- This capability developed on the National Ignition Facility (NIF), expands significant class of new measurements for producing quality data at extreme conditions.



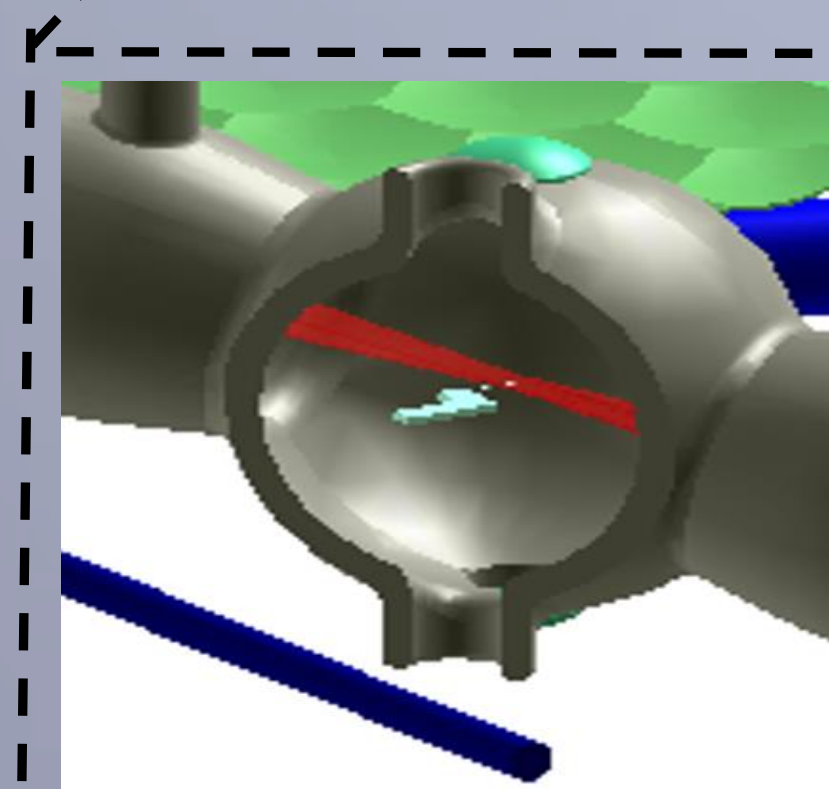
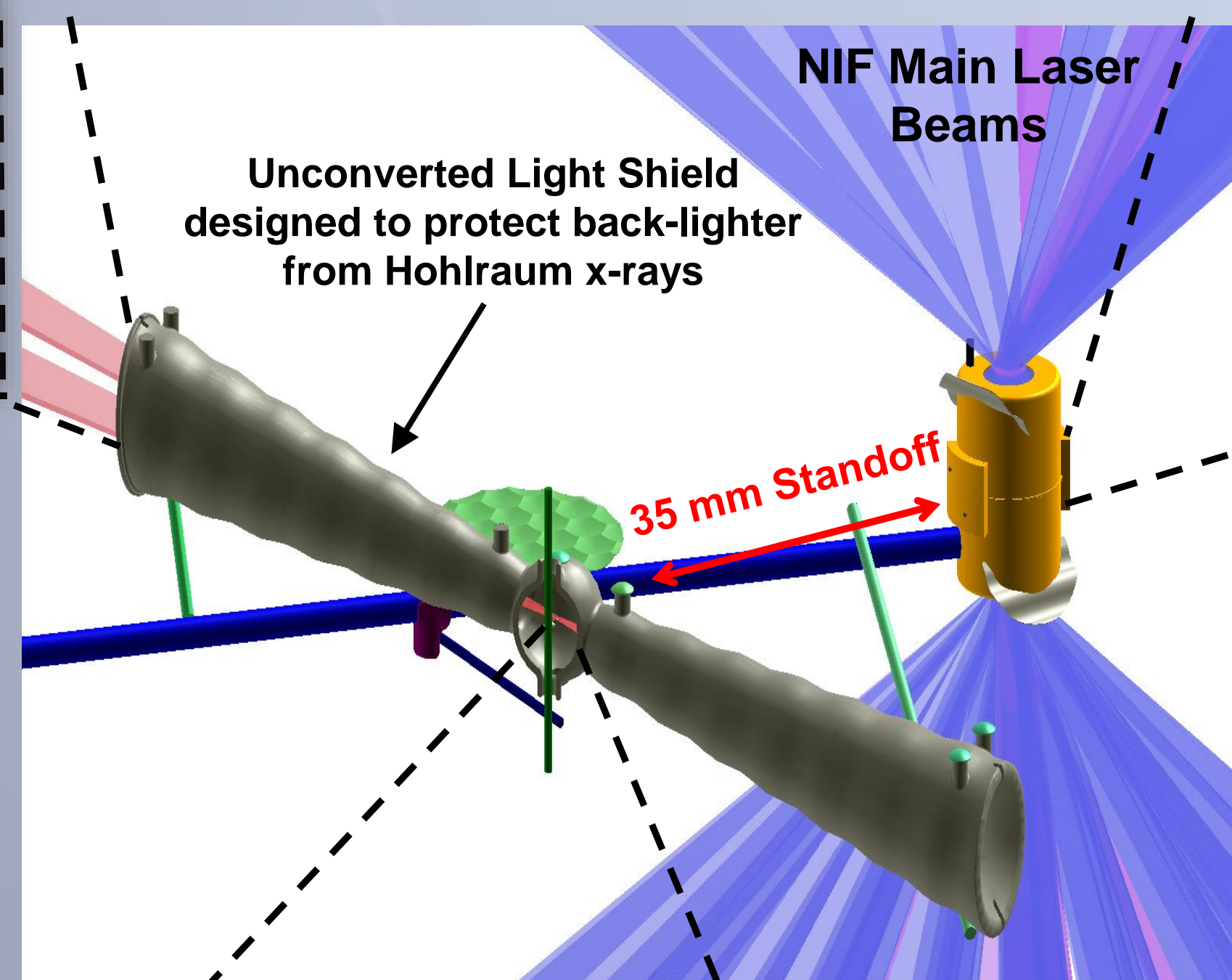
- Target Diagnostics require micron accuracy in metrology and alignment to meet precise specifications for ARC.

EXPERIMENT OVERVIEW

View of wire from laser entrance cone

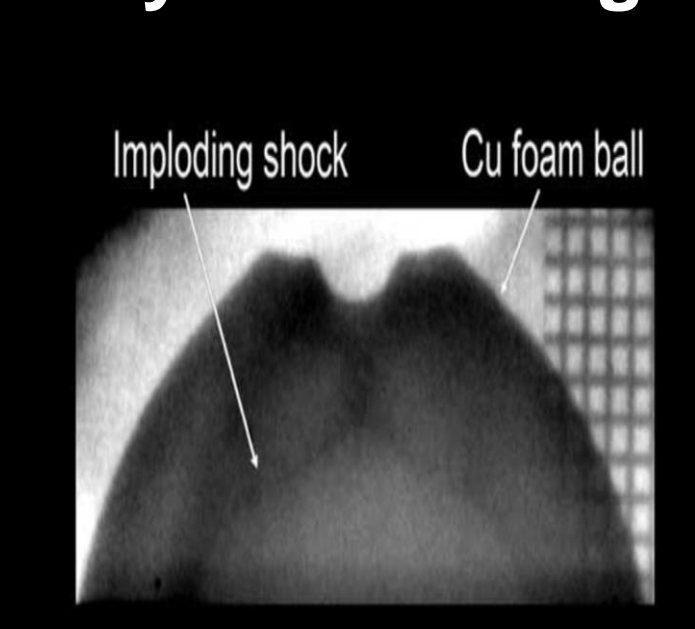


- 4 ARC Beamlets will enter cone shield focusing on a target beam point that will illuminate a 15µm tungsten wire.



- 15µm Diameter Tungsten wire oriented towards target diagnostics, Creating a bright source of hard x rays.

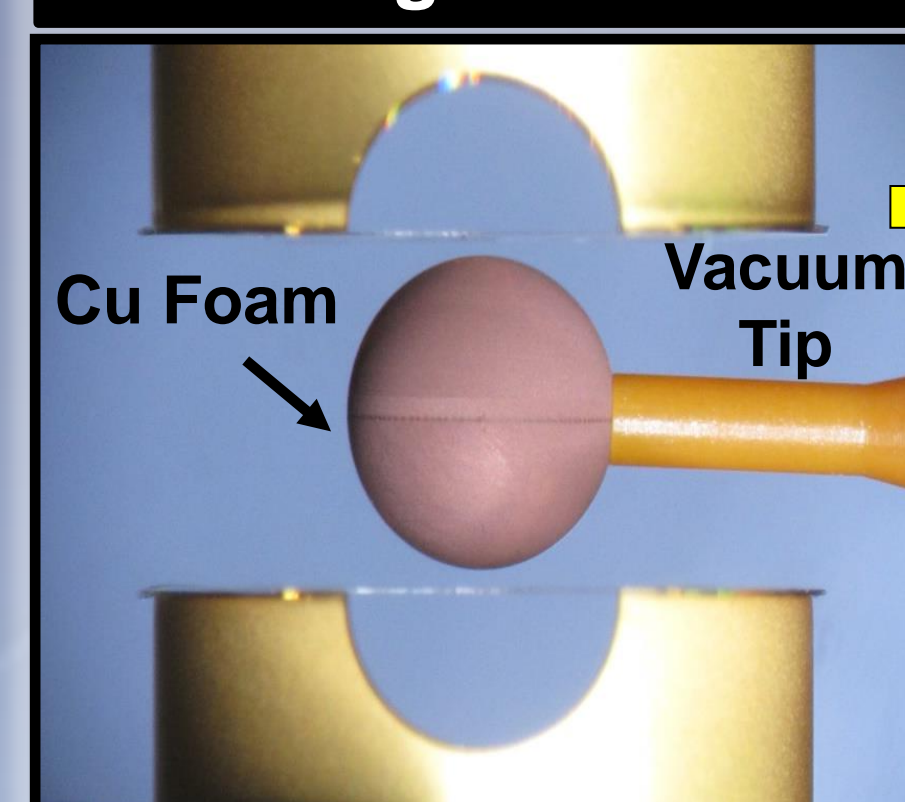
Radiograph of Physics Package



- Primary goal is to image Physics Package at center of driven hohlraum.

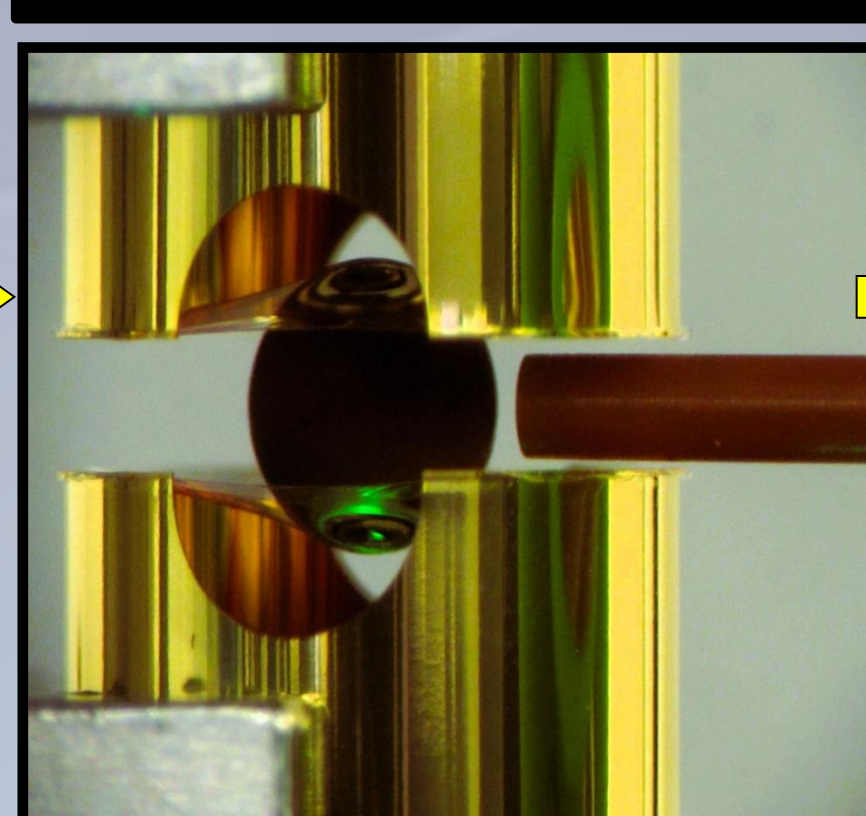
PHYSICS PACKAGE TO HOHLRAUM ASSEMBLY

Physics Package Alignment



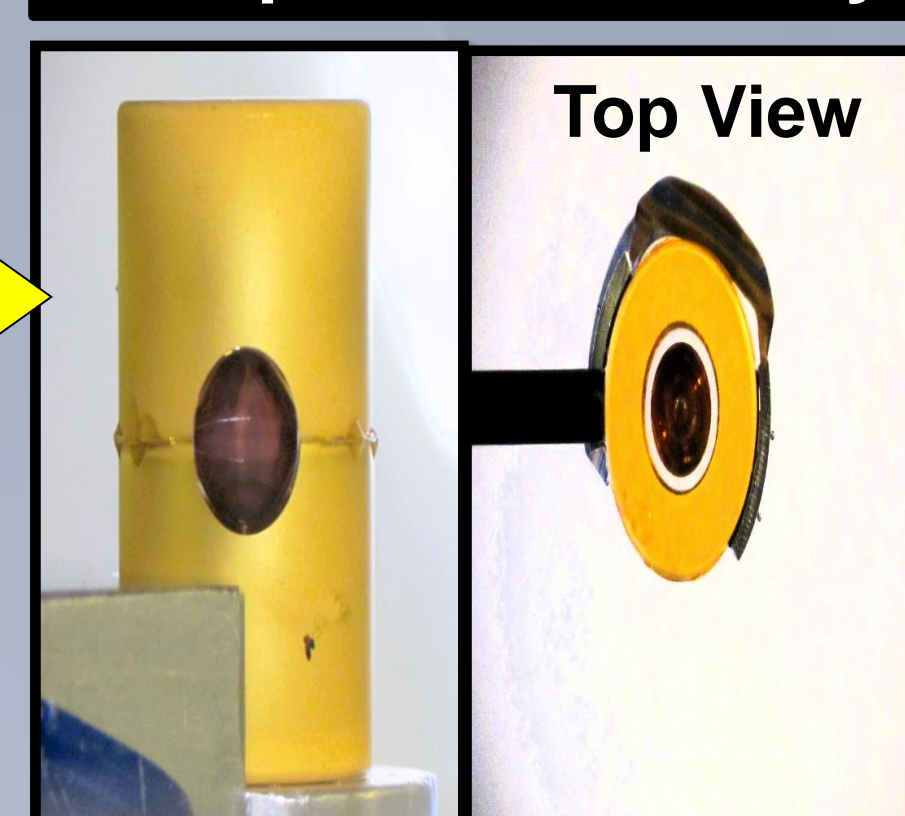
- Physics Package orientation is critical during assembly.

Tent Contact & Close



- Hohlraums are brought in together simultaneously, released from vacuum and suspended between 45nm tents.

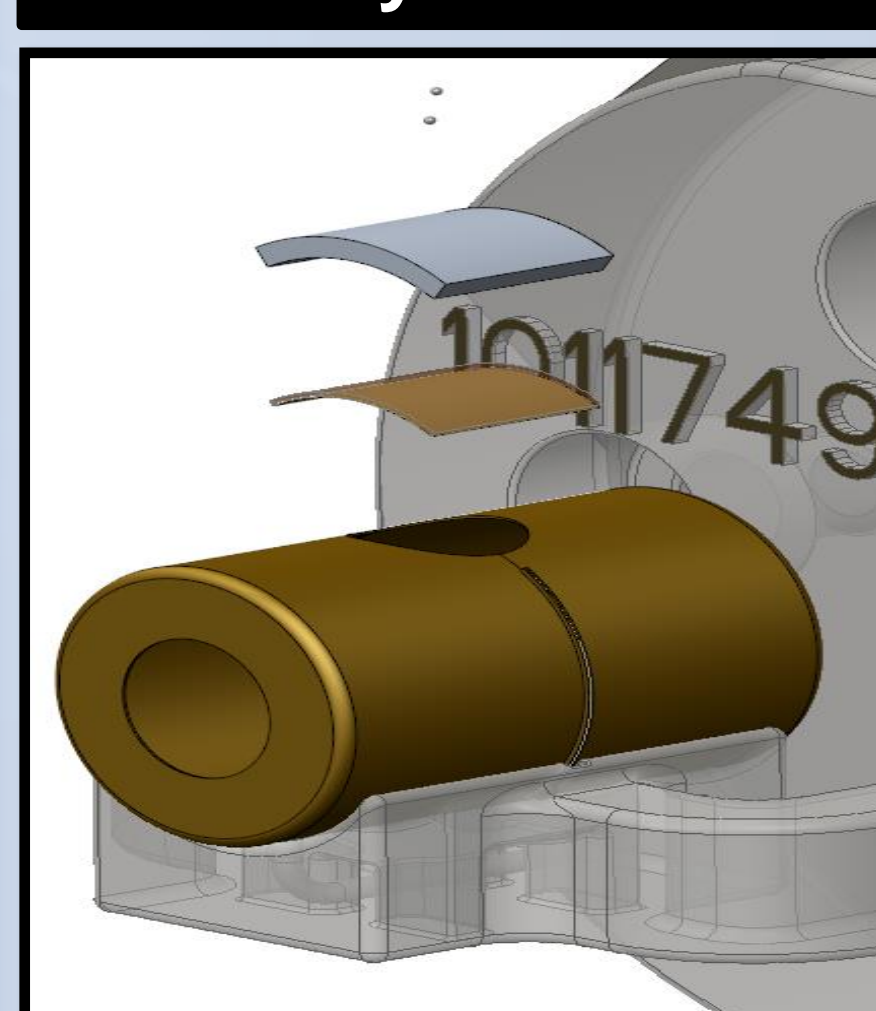
Completed Assembly



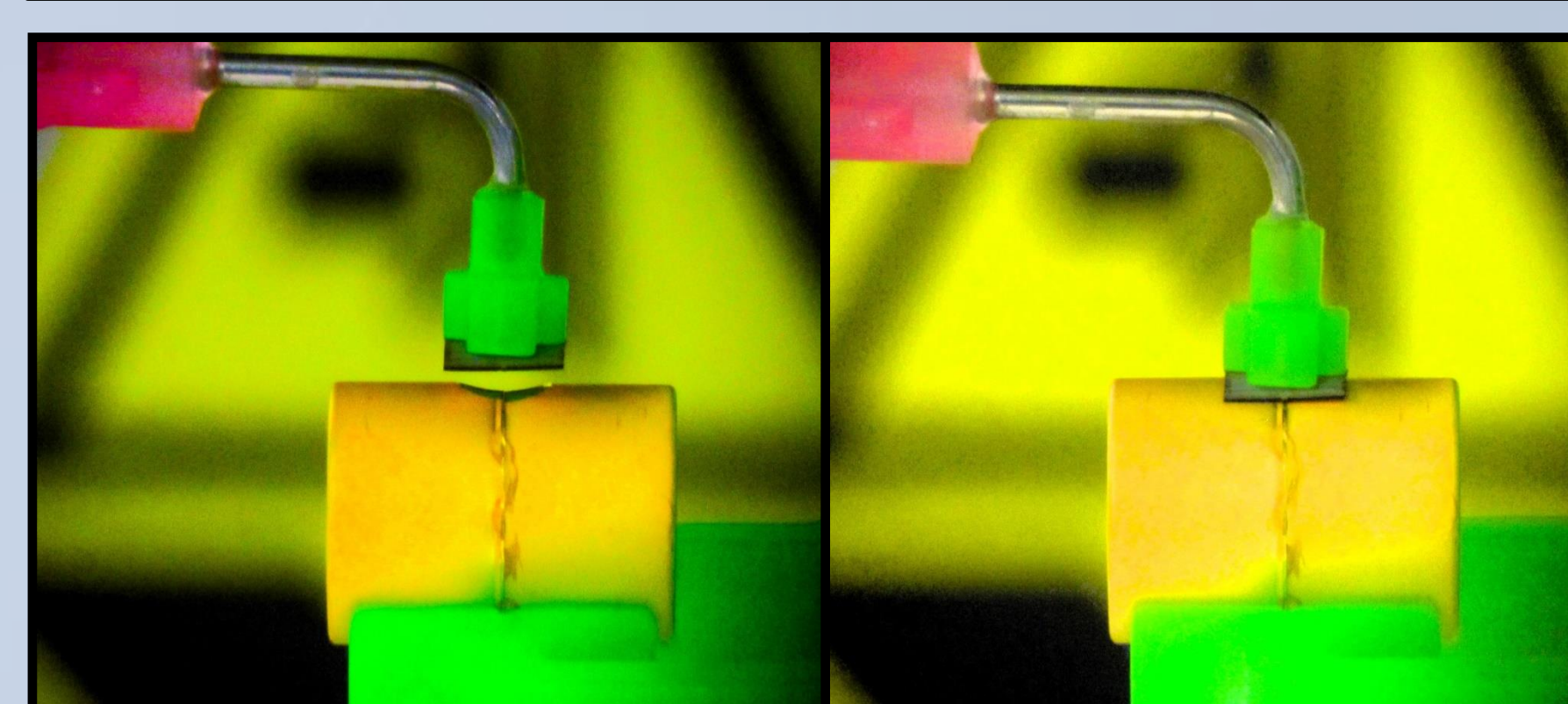
- Assembly is successful when Physics Package is aligned and Hohlraums are closed

DIAGNOSTIC ASSEMBLY

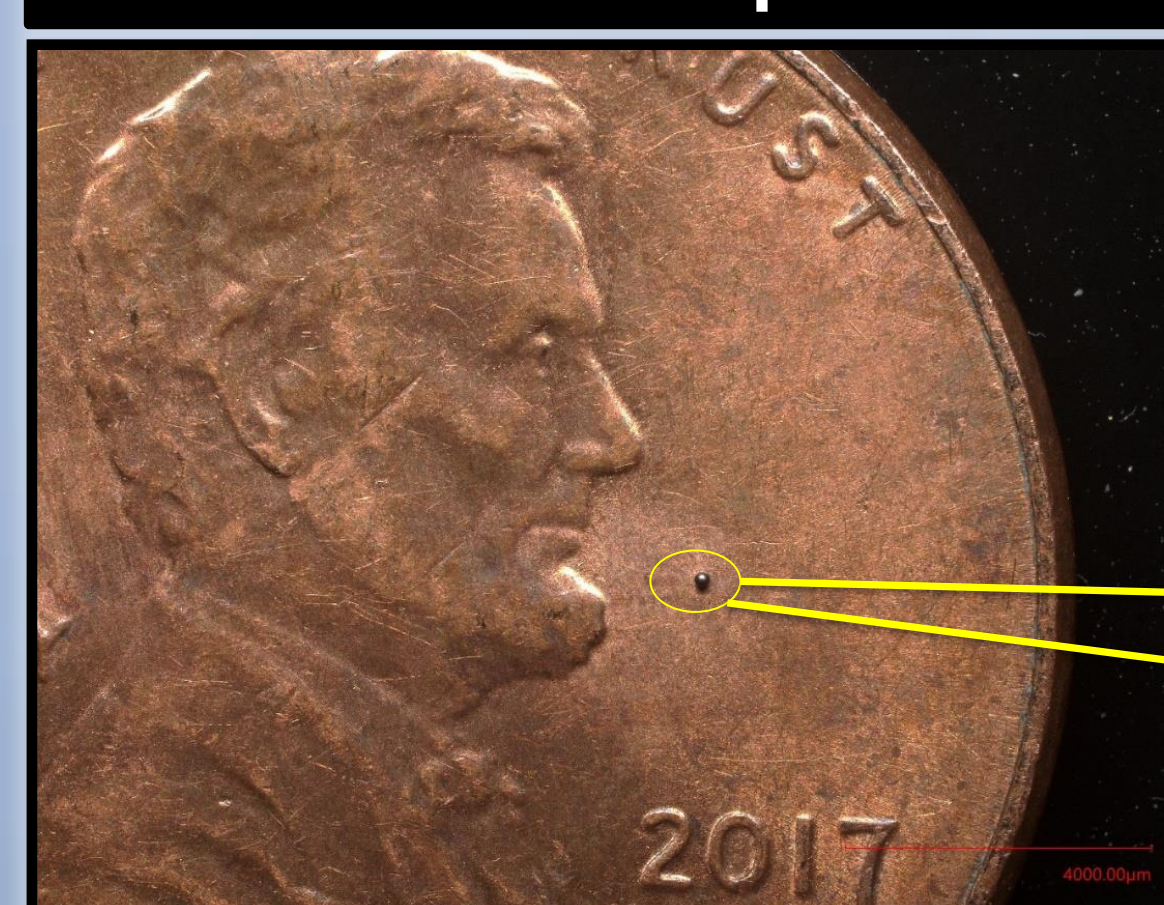
Hohlraum Diagnostic Assembly Orientation



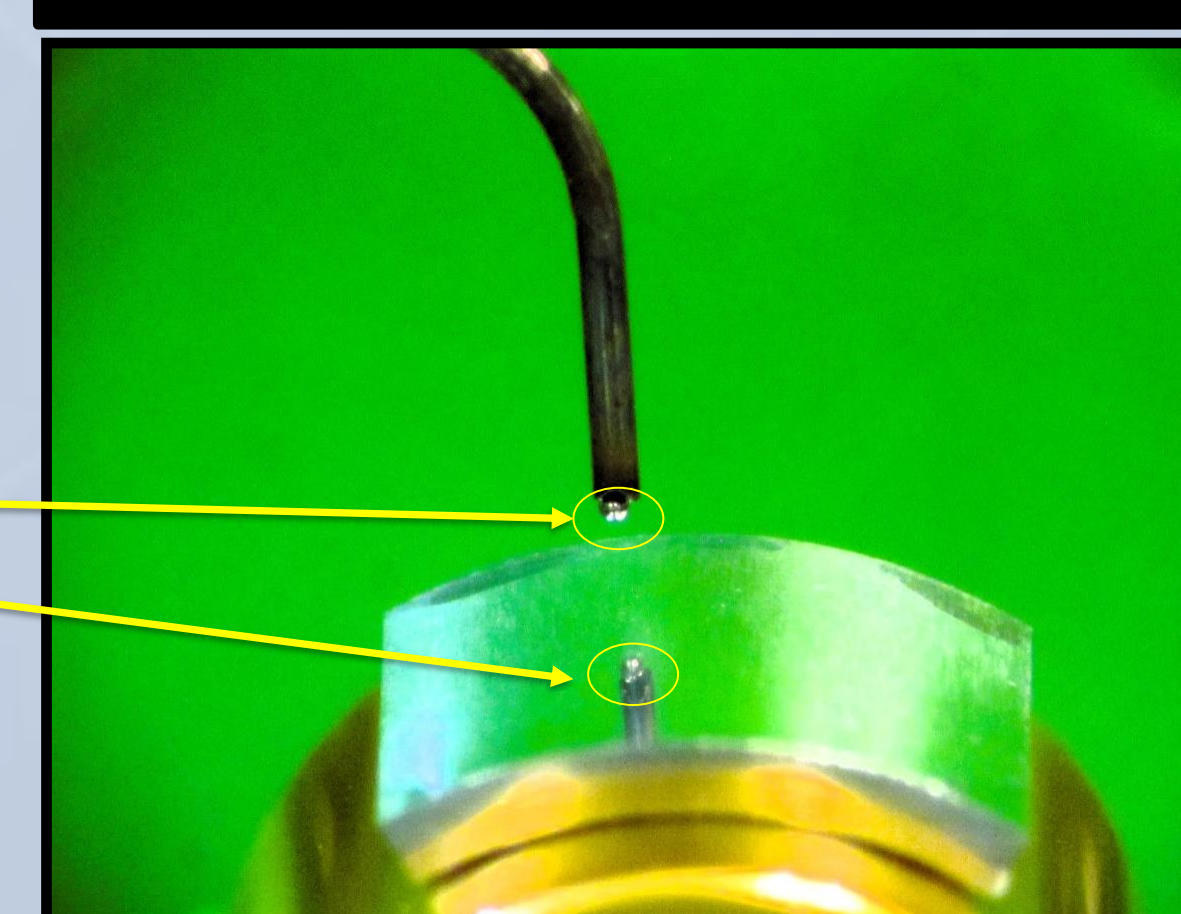
Diagnostic Window Install



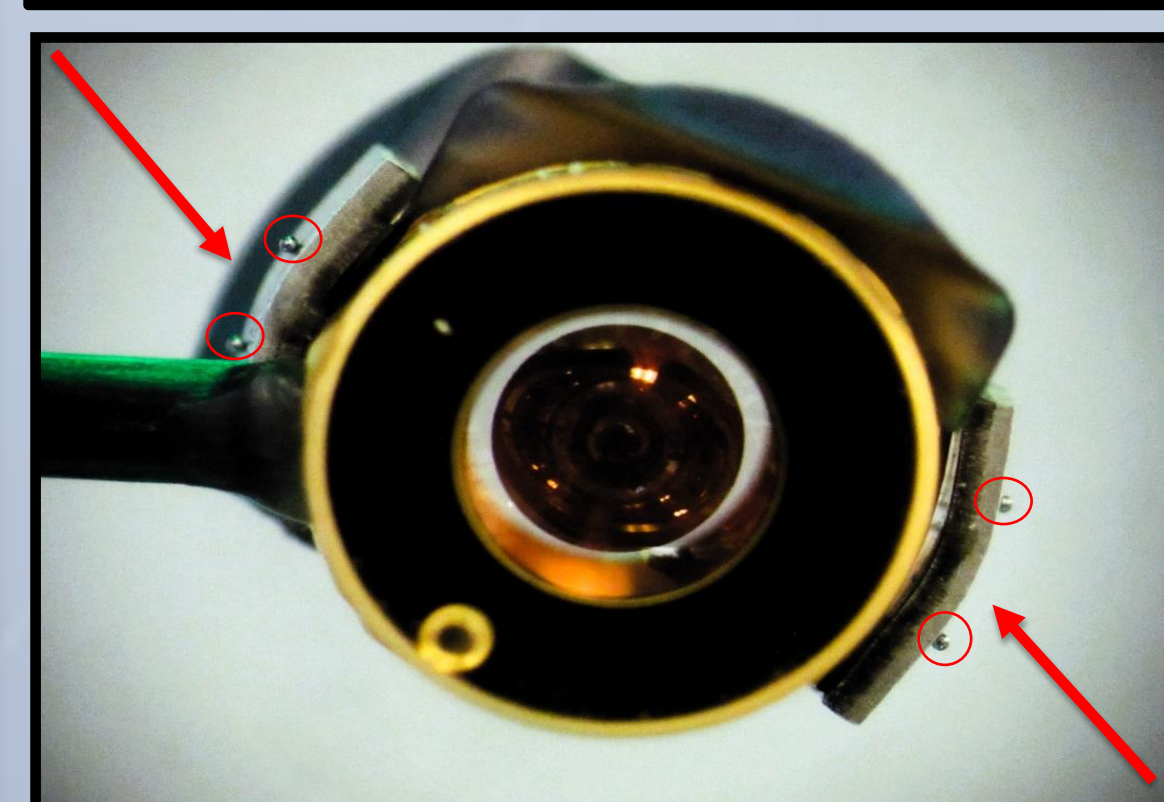
200-micron Sphere



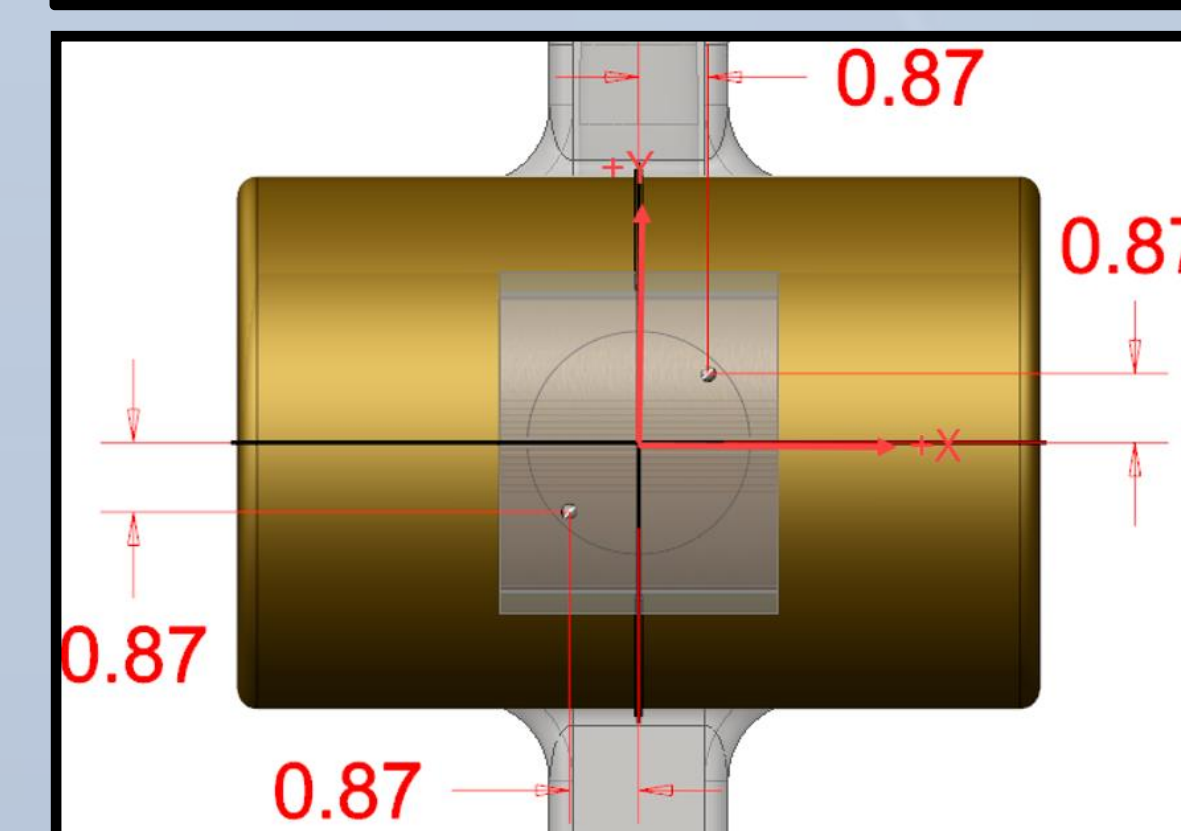
Tungsten Carbide Sphere Install



Spheres installed on both sides of Hohlraum



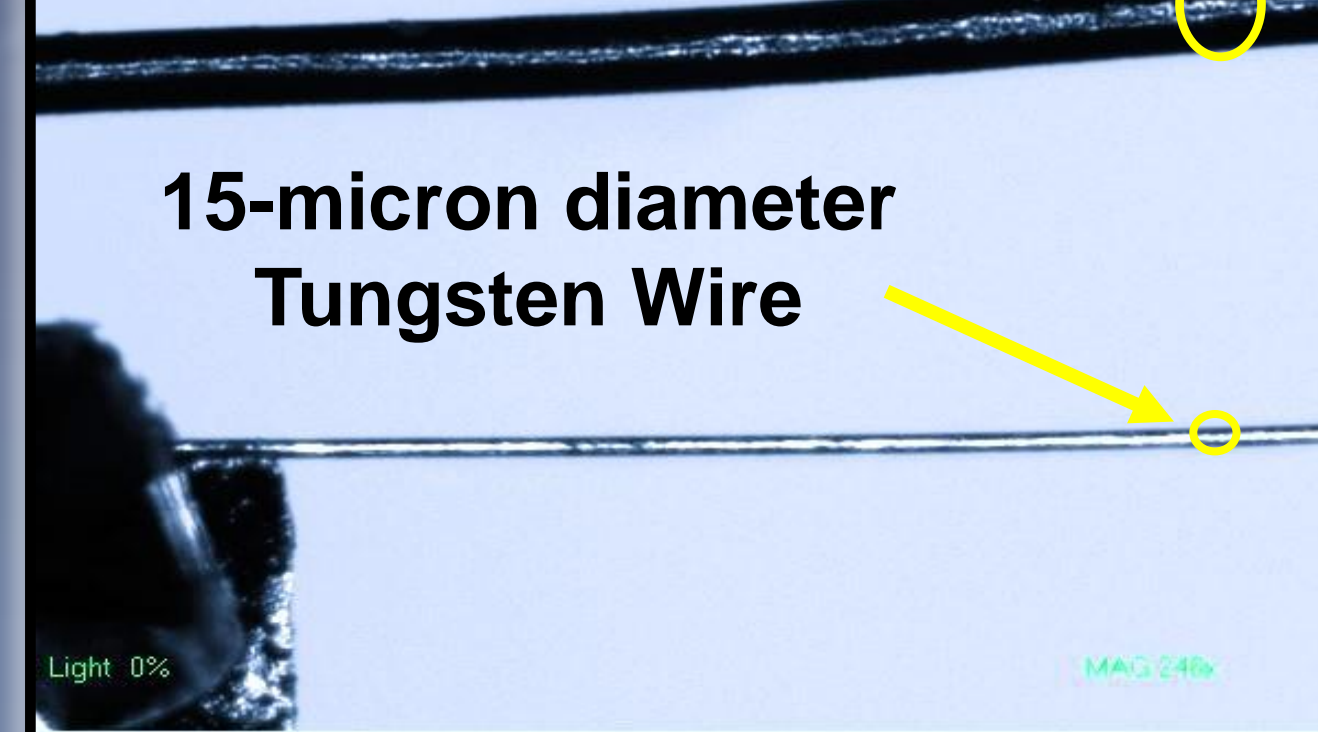
Sphere location relative to Hohlraum center



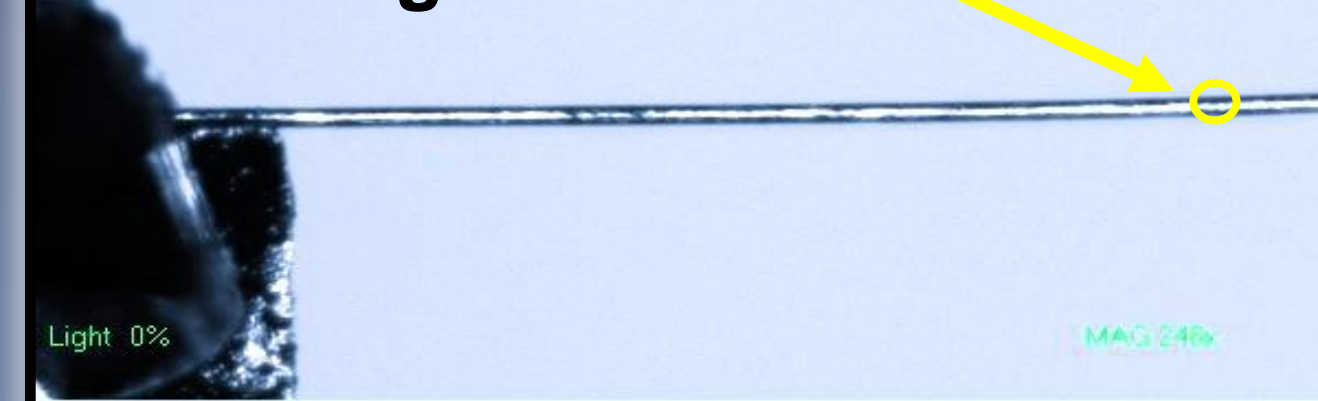
- Sphere position accurately determine image magnification measurements and monitor x-ray source location.

BACKLIGHTER WIRE & CONE ASSEMBLY

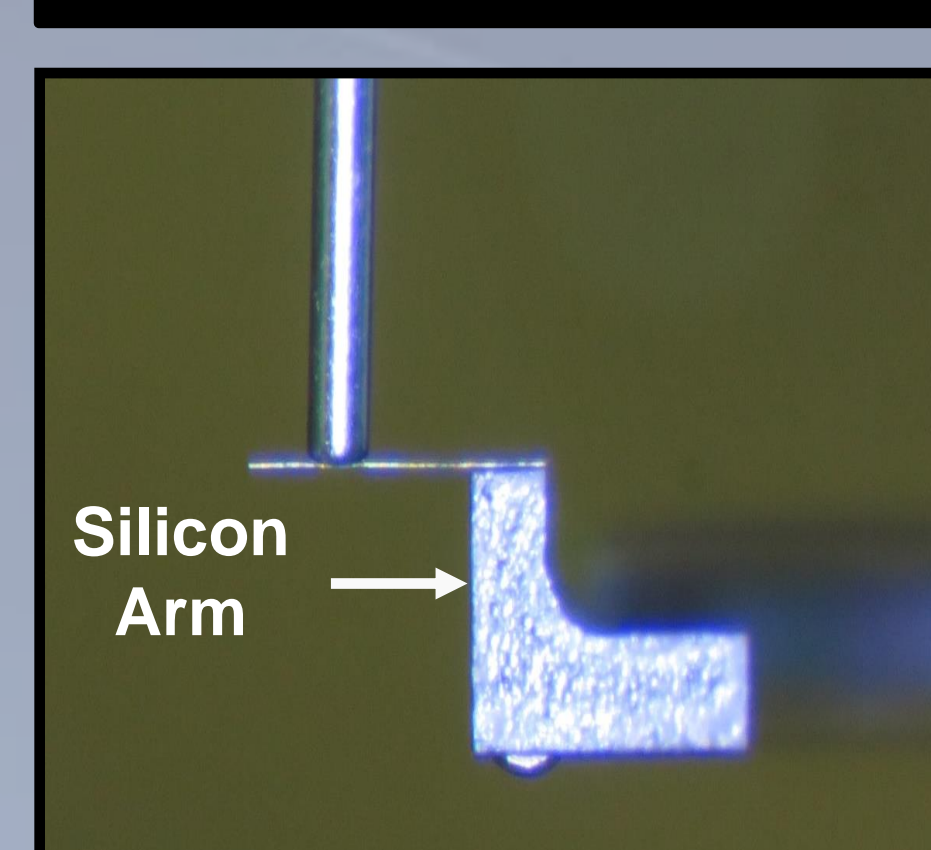
50-70 µm (microns) in diameter Human Hair



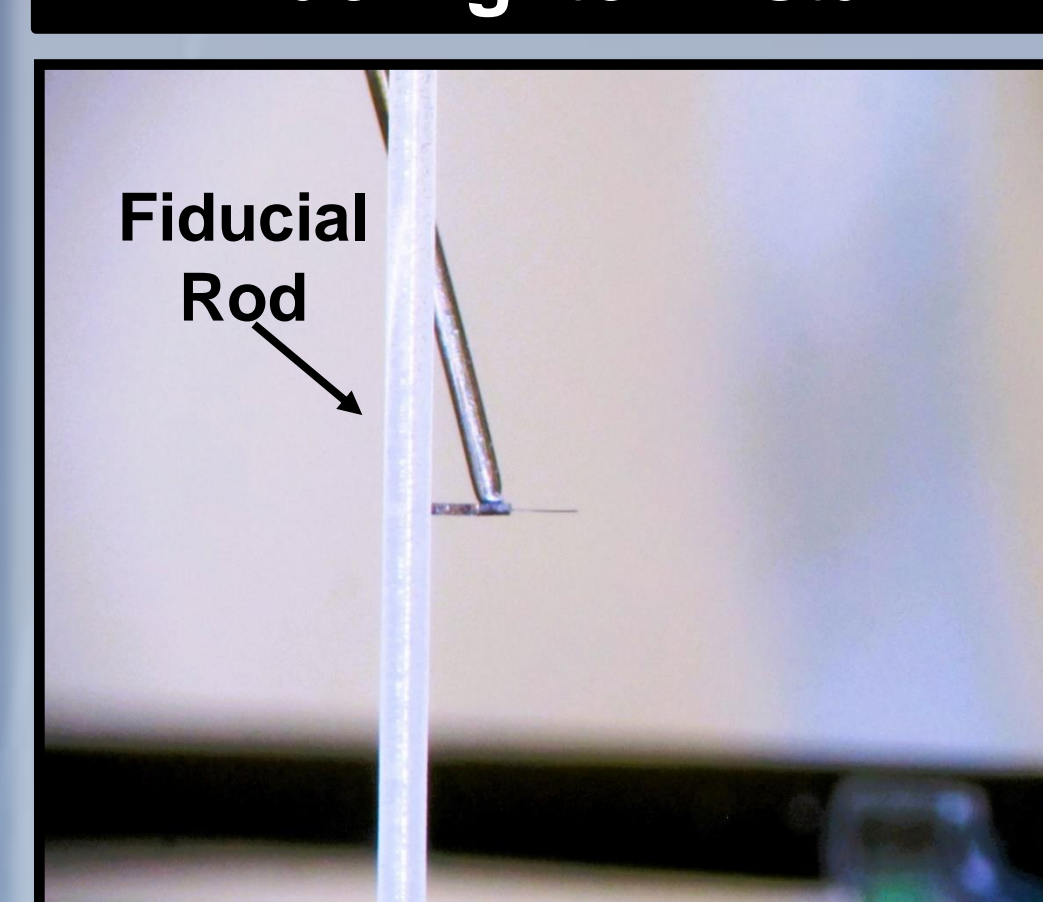
15-micron diameter Tungsten Wire



Wire install to Si Arm

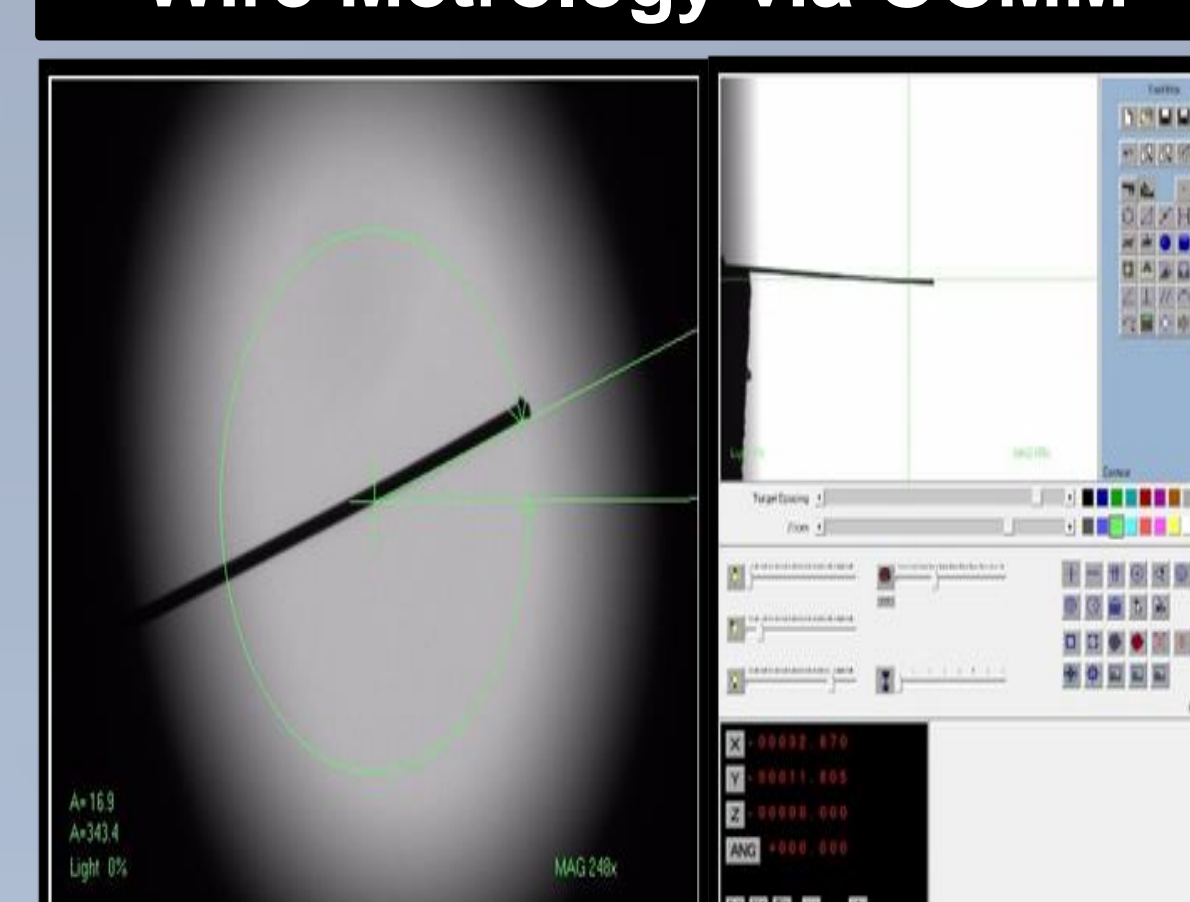


Backlighter Install

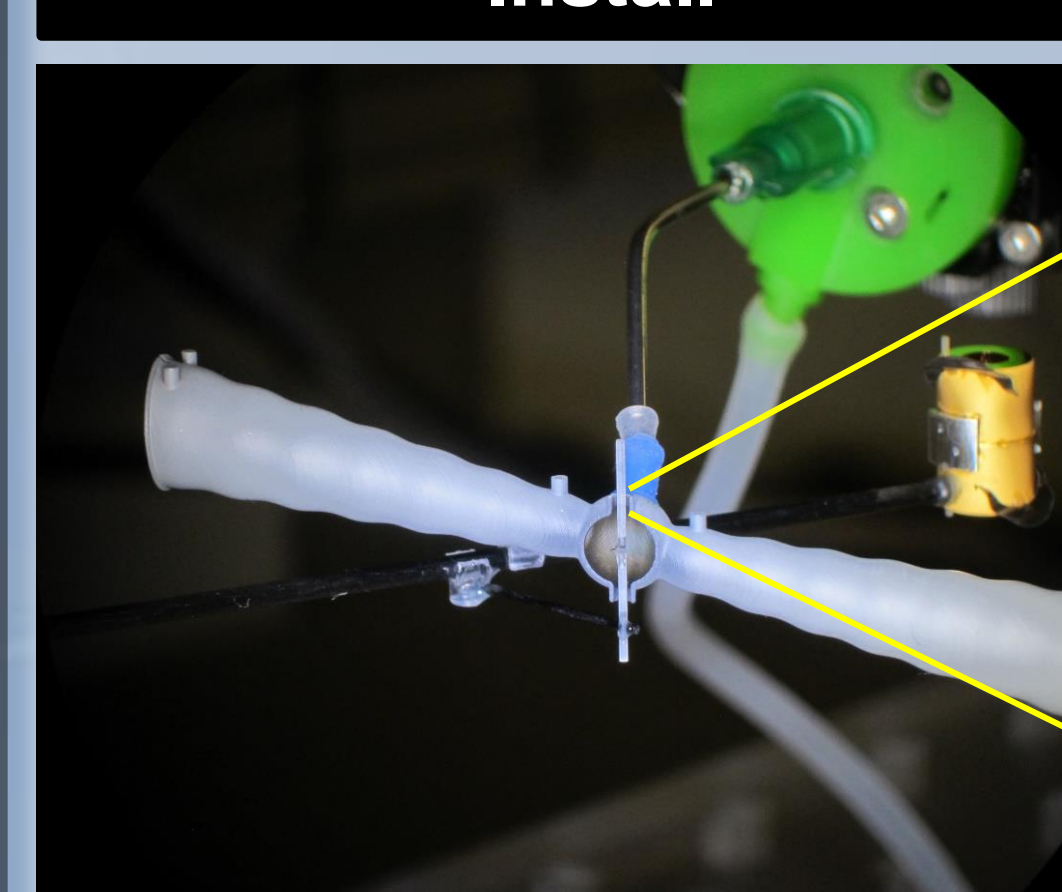


- Fiducial Rod position is important for alignment on target chamber

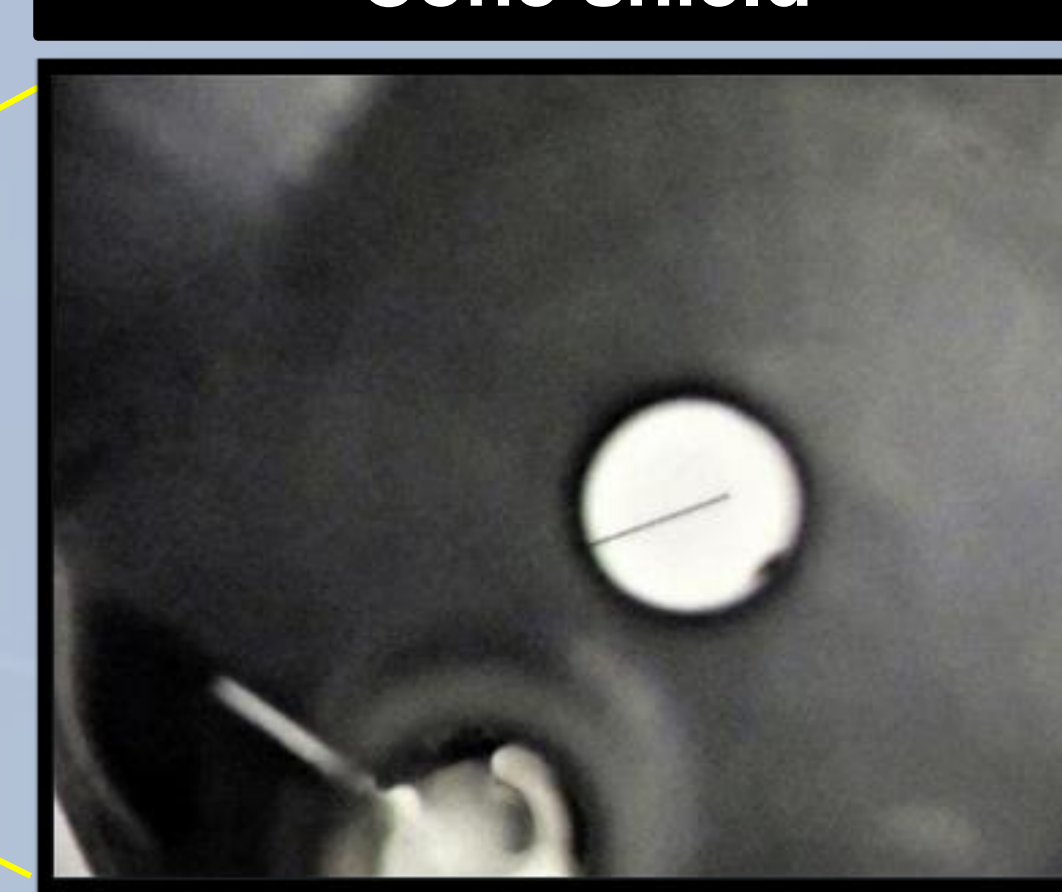
Wire Metrology via OCMM



Backlighter Cone Shield Install



Wire View from Top of Cone shield



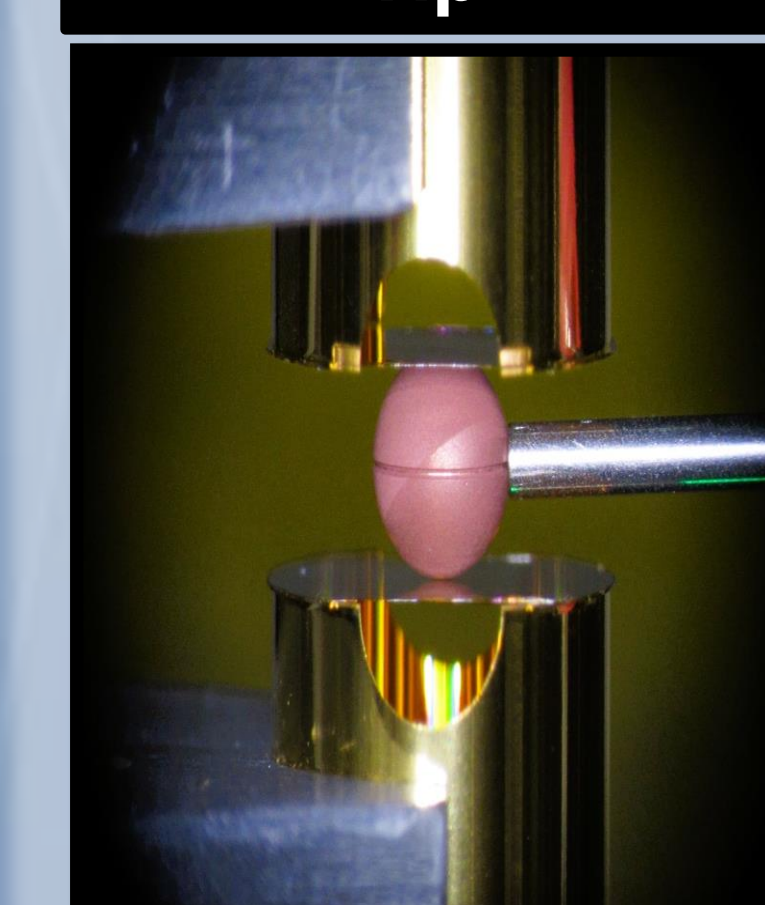
PROCESS IMPROVEMENTS

Mirror Metrology Station

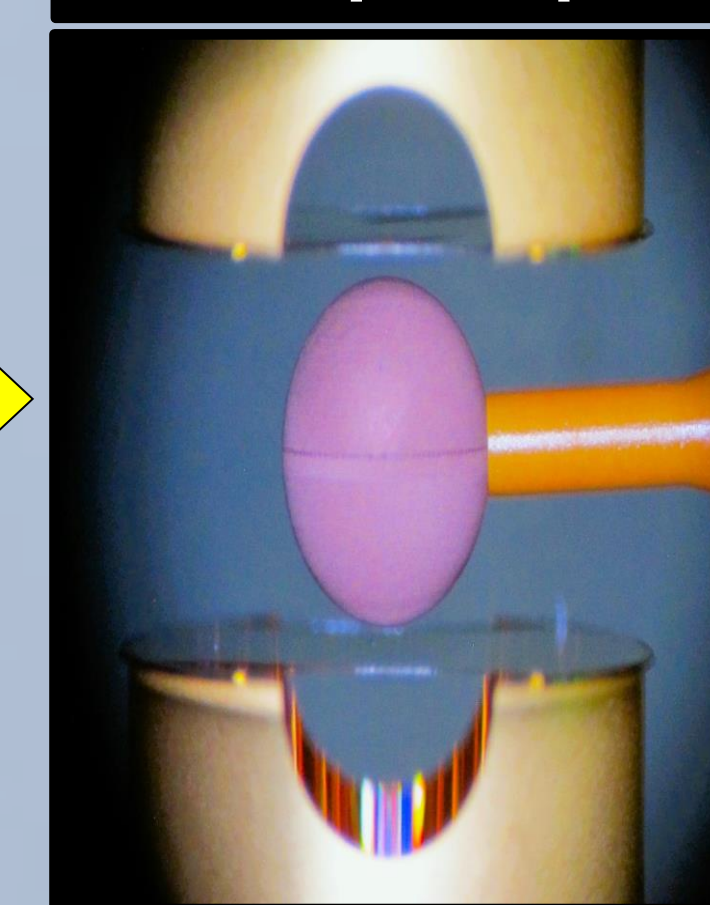


- Mirror metrology station is developed to verify wire position after full target build

Stainless Steel Tip



Vespel Tip



- A Vespel Vacuum tip provides improvements on handling and assembly.