Thin Object Radiography with a 2.2 MeV Pulsed Power Machine

TODD HAINES, JEREMY DANIELSON, W. MONTY WOOD, Los Alamos Natl Lab — An experimental series was performed at a pulsed-power 2.2 MeV flash radiography machine to determine the lower limits of its mass sensitivity. This machine uses a rod-pinch diode with accelerating potential of 2.2 MeV and 50 ns pulse duration. Tungsten, aluminum, and titanium rod anodes were used to tune the emitted bremsstrahlung spectrum; as well as aluminum and beryllium filter materials. Analysis of thin tantalum foils shows a mass sensitivity as low as 300 $\mu g/cm^2$. This is a factor of 5 better than previous measurements.