

Neutron Tomography of Sealed Radioactive Materials

2014 CAP Congress

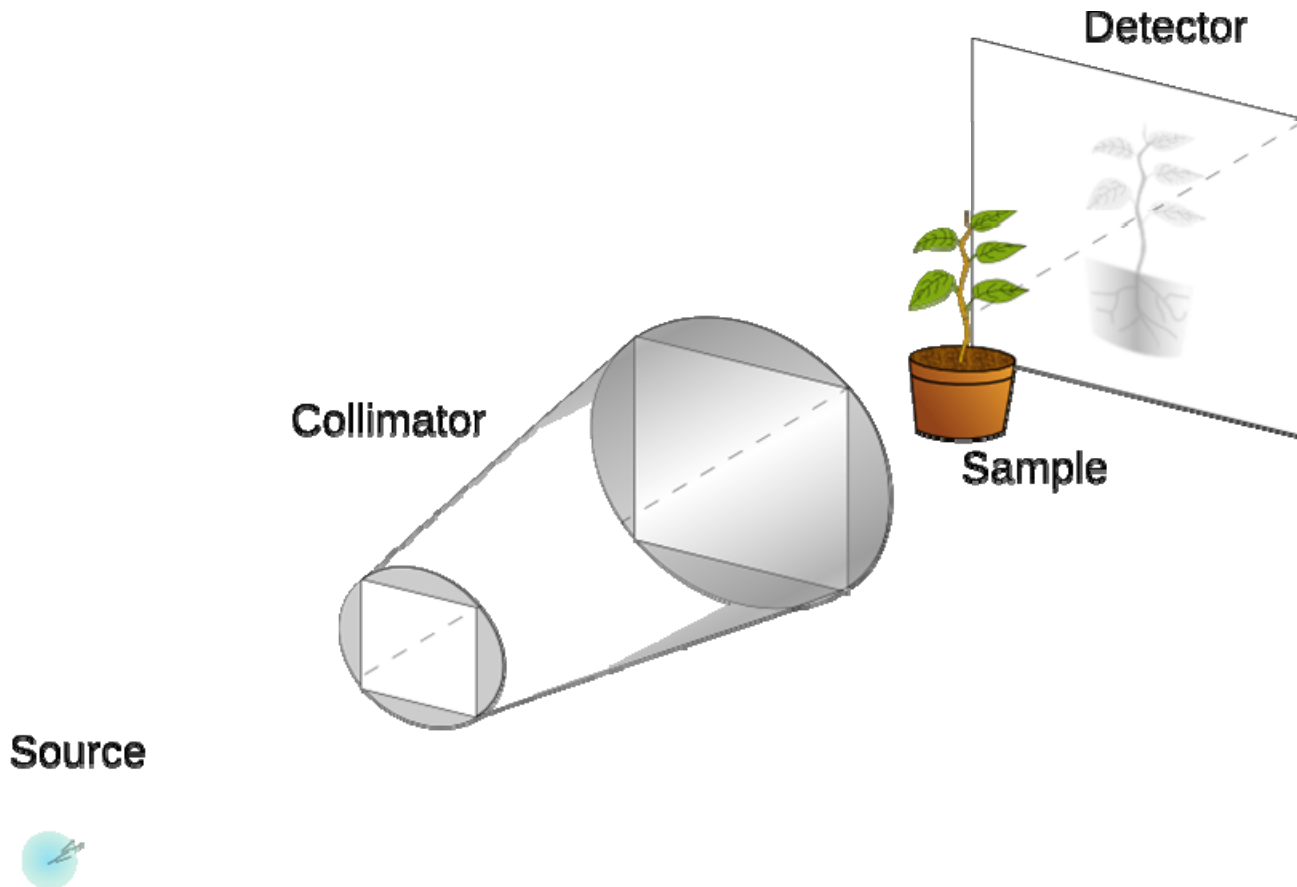
Sudbury, Ontario

2014-06-19

- G. Li
- R. Rogge
- G. Bentoumi
- B. Sur



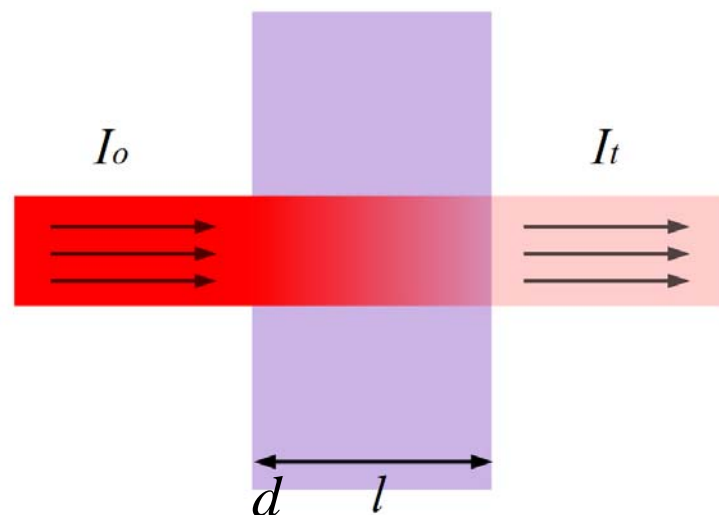
Neutron Imaging



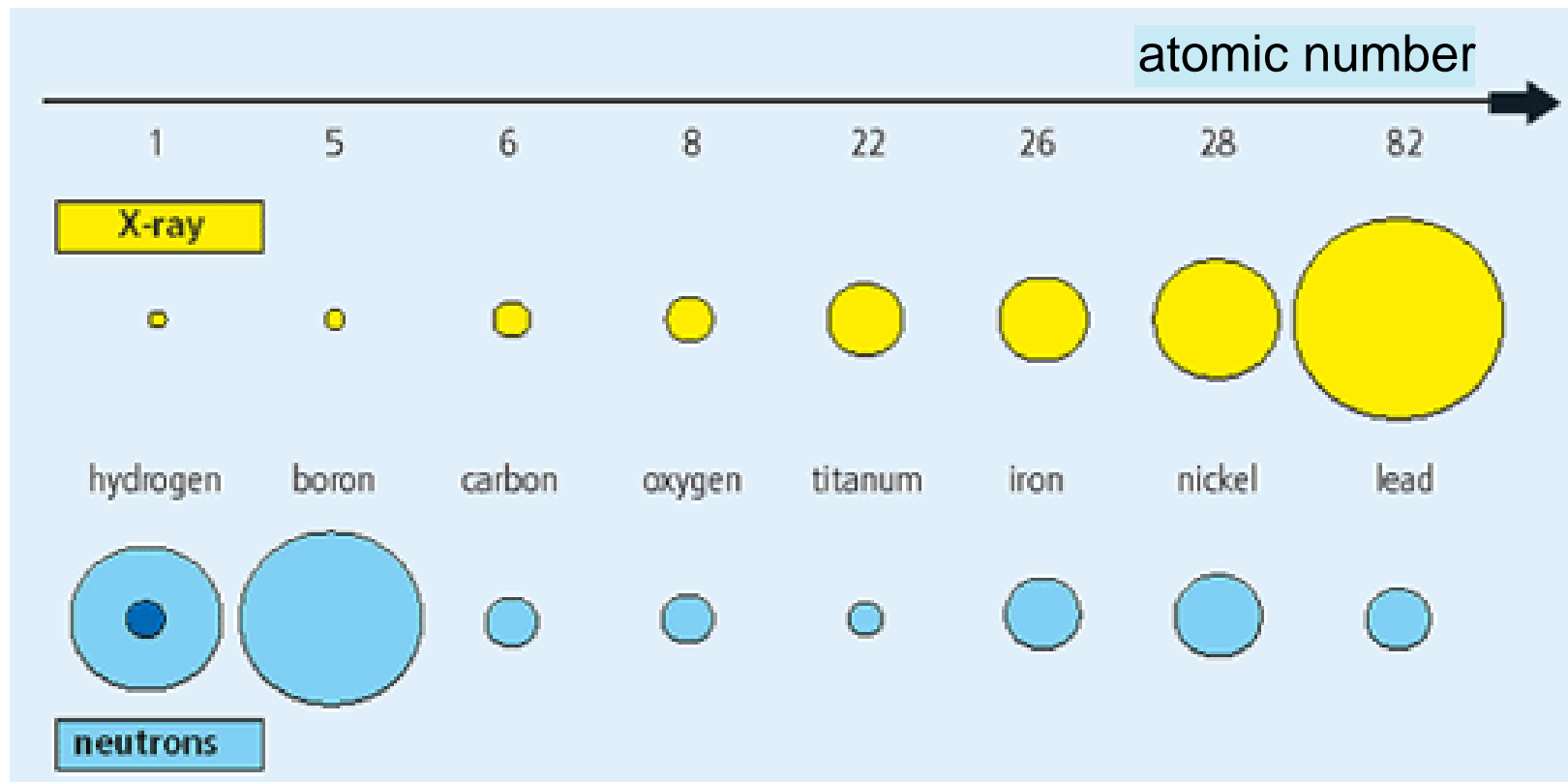
What Are We Measuring?

$$I = I_0 e^{-\mu d}$$

Beer-Lambert's Law



Neutron Vs. X-ray



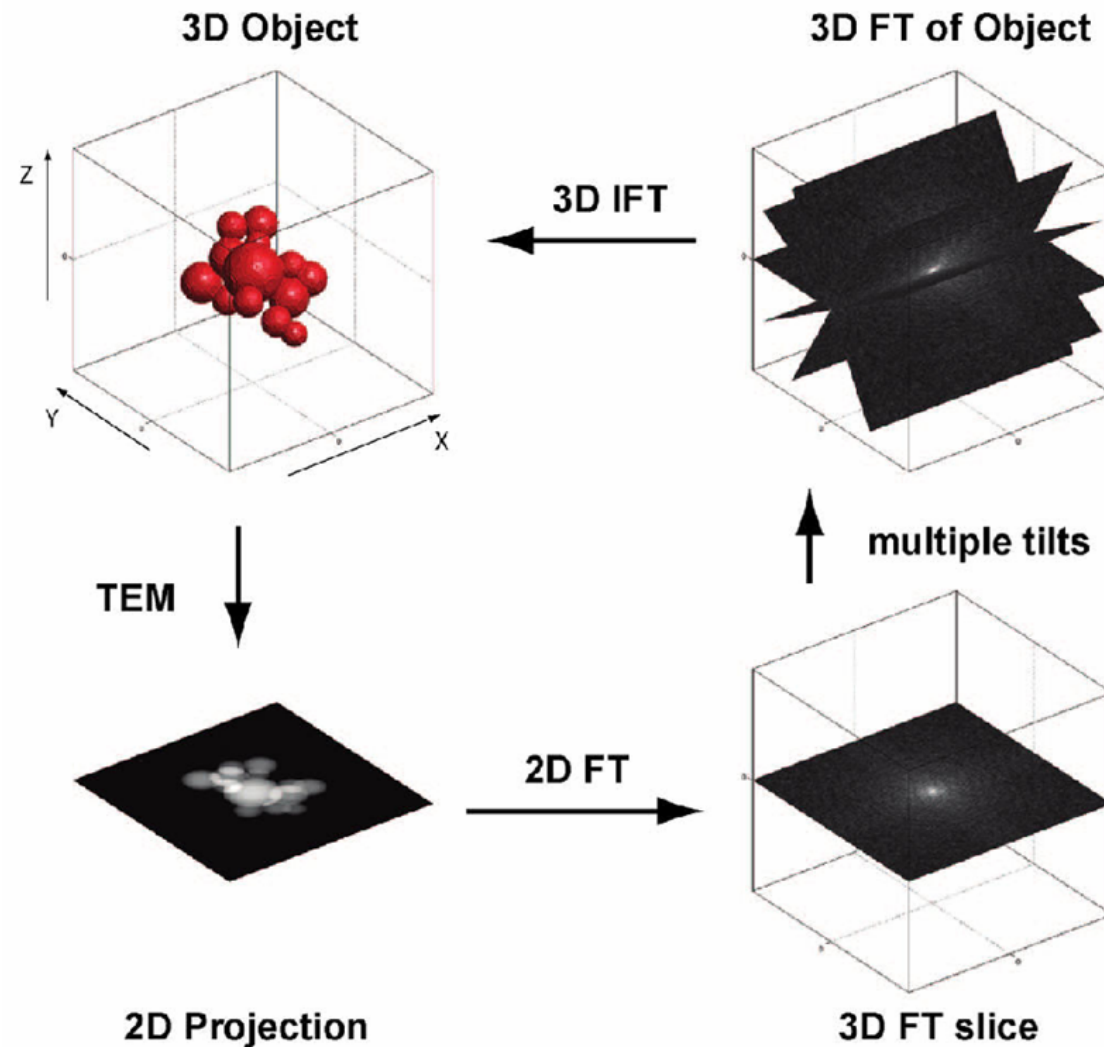
Cross section of neutron and x-ray

Photo via Neutron



Picture courtesy of PSI

Tomography



Frequency Domain



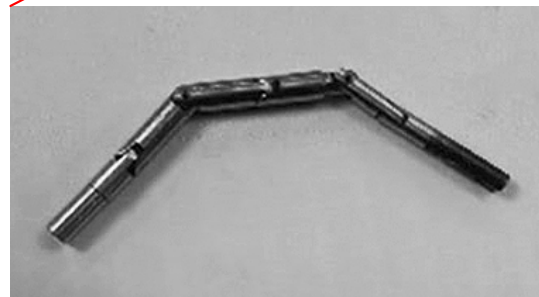
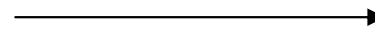
Sealed Radioactive Materials



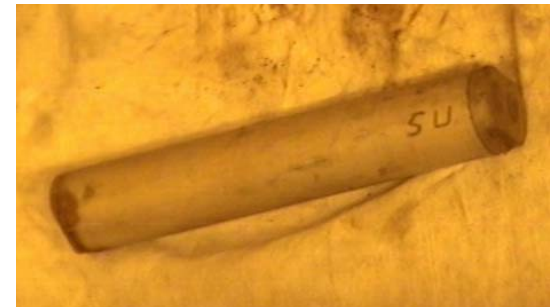
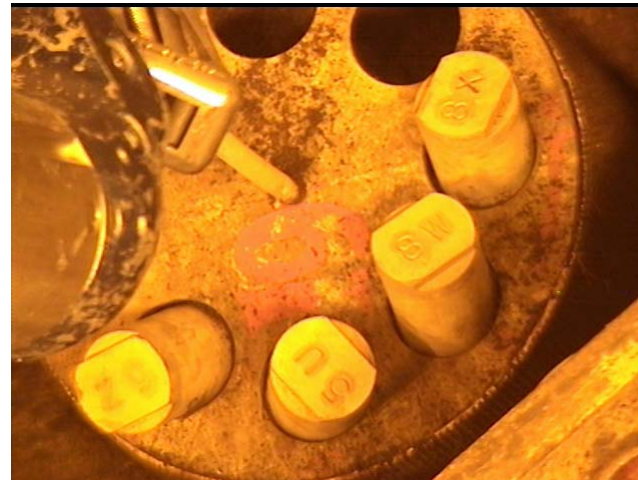
Lost and Found Radioactive Materials



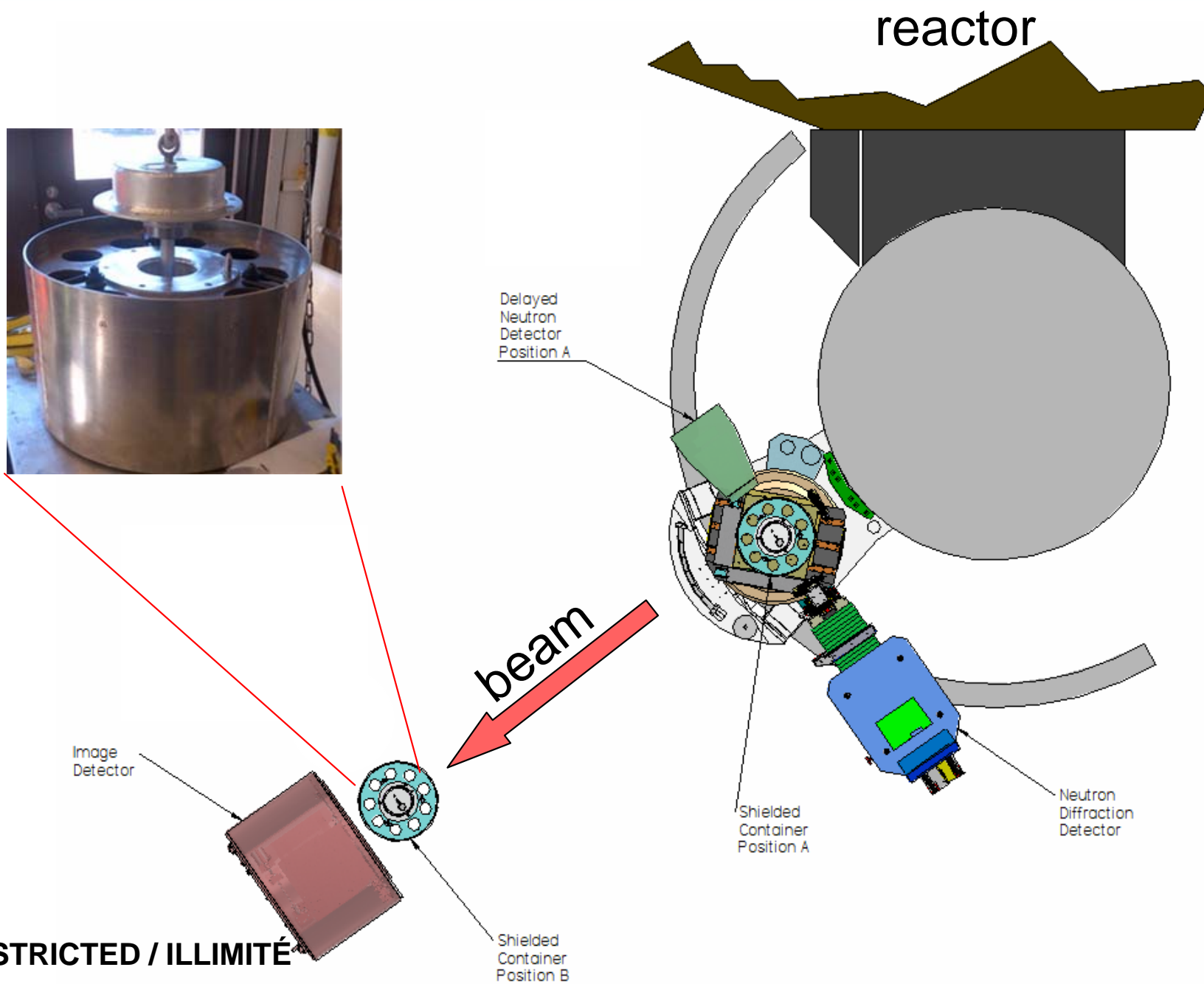
3 days
1 km



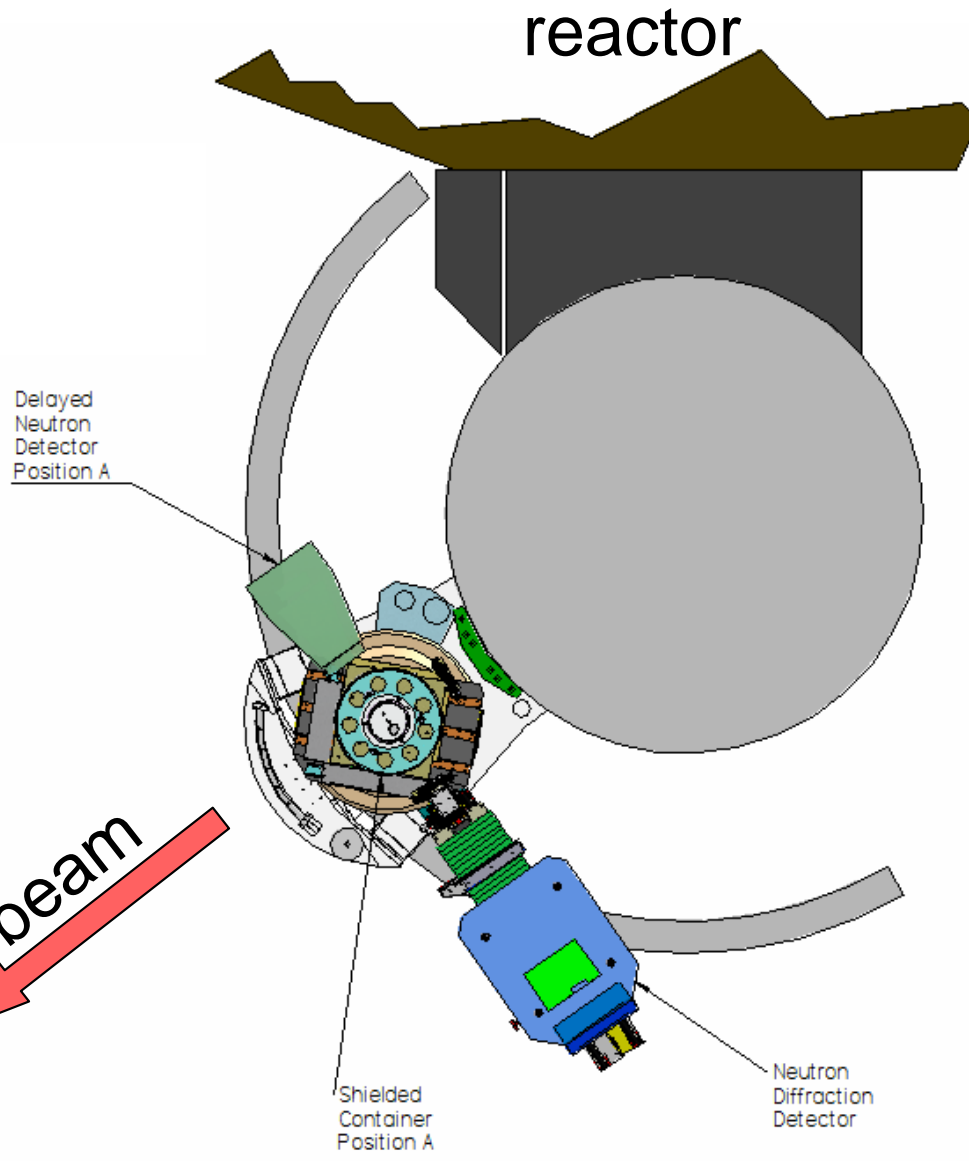
AECL Legacy Flask



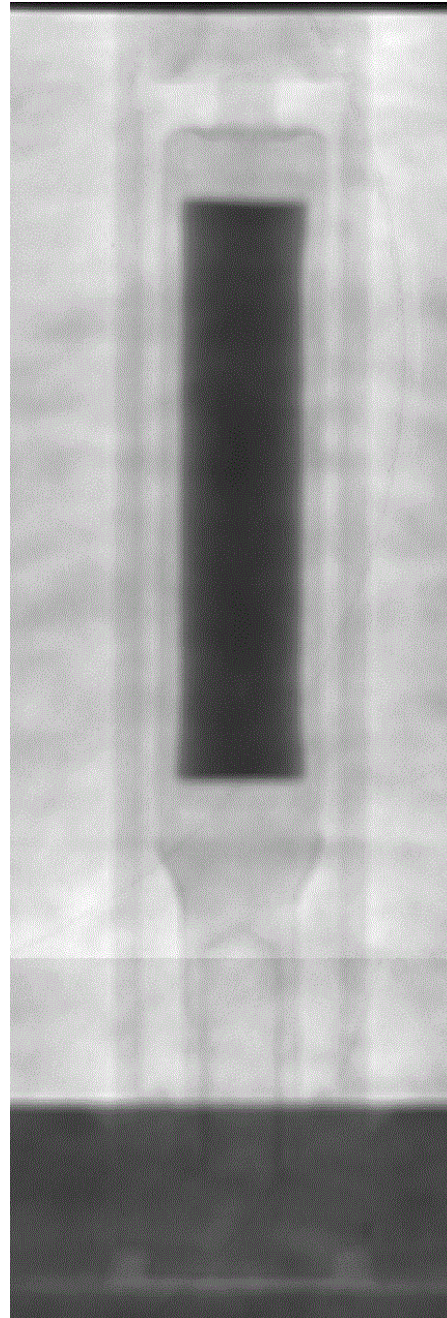
Experimental Setup



Experimental Setup

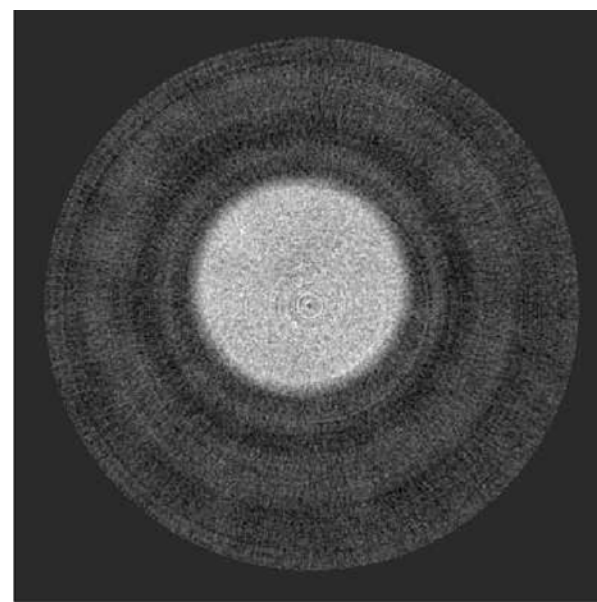
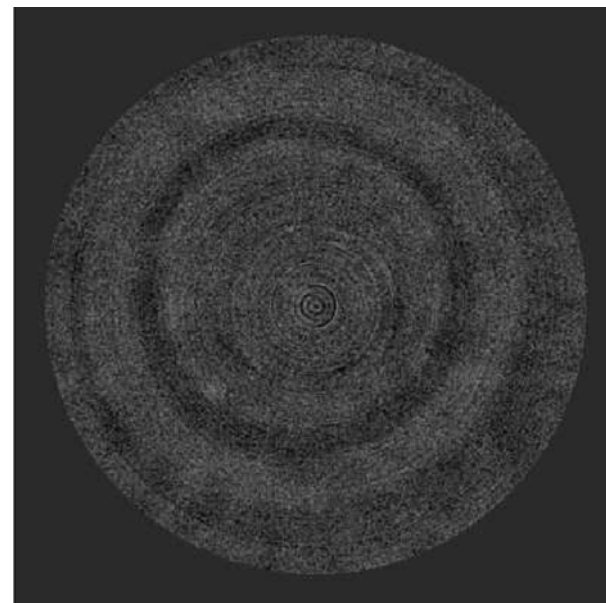
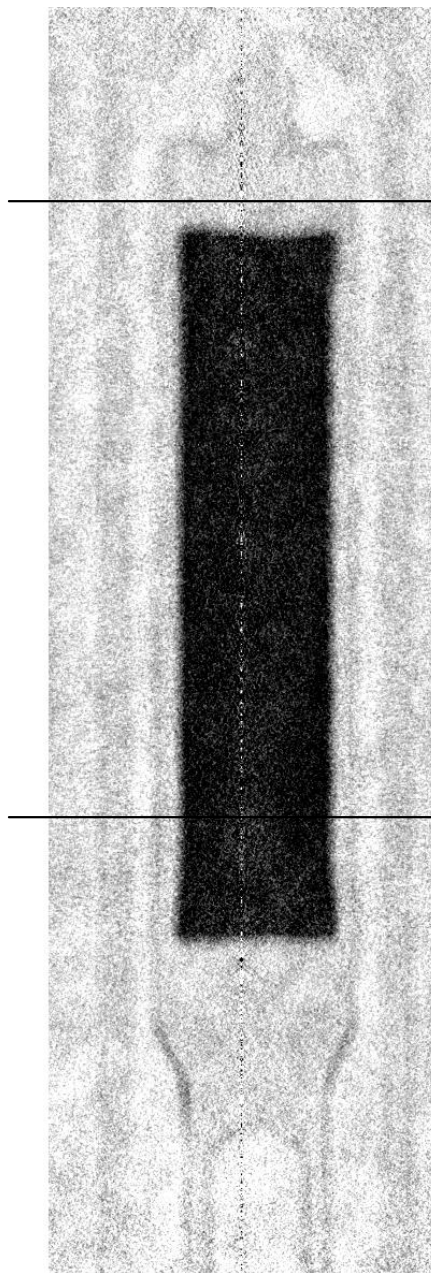
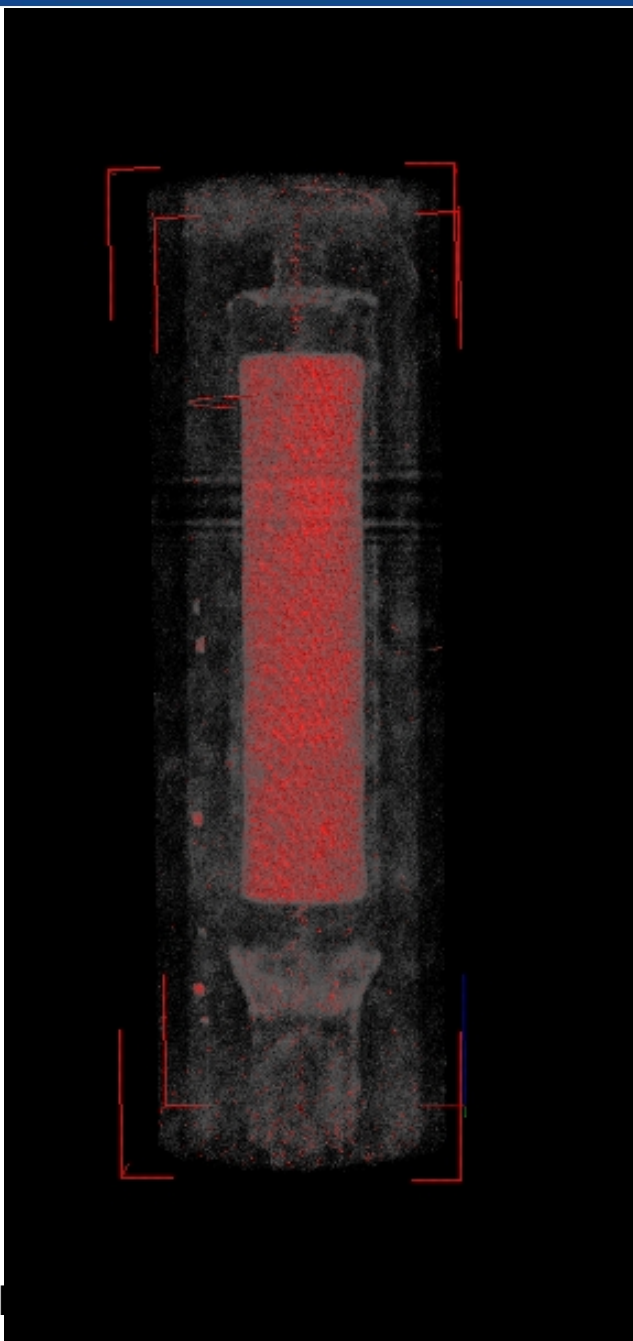


Neutron Radiography



UNRESTRICTED / ILLIMITÉ

Neutron Tomography



Outlook

A neutron image station at AECL's NRU reactor.



Image plate detector



CCD Camera