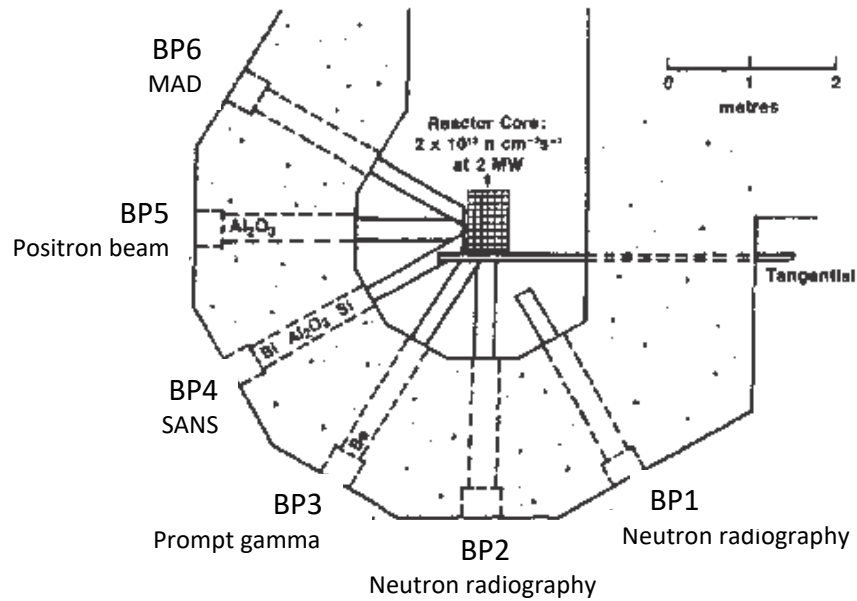
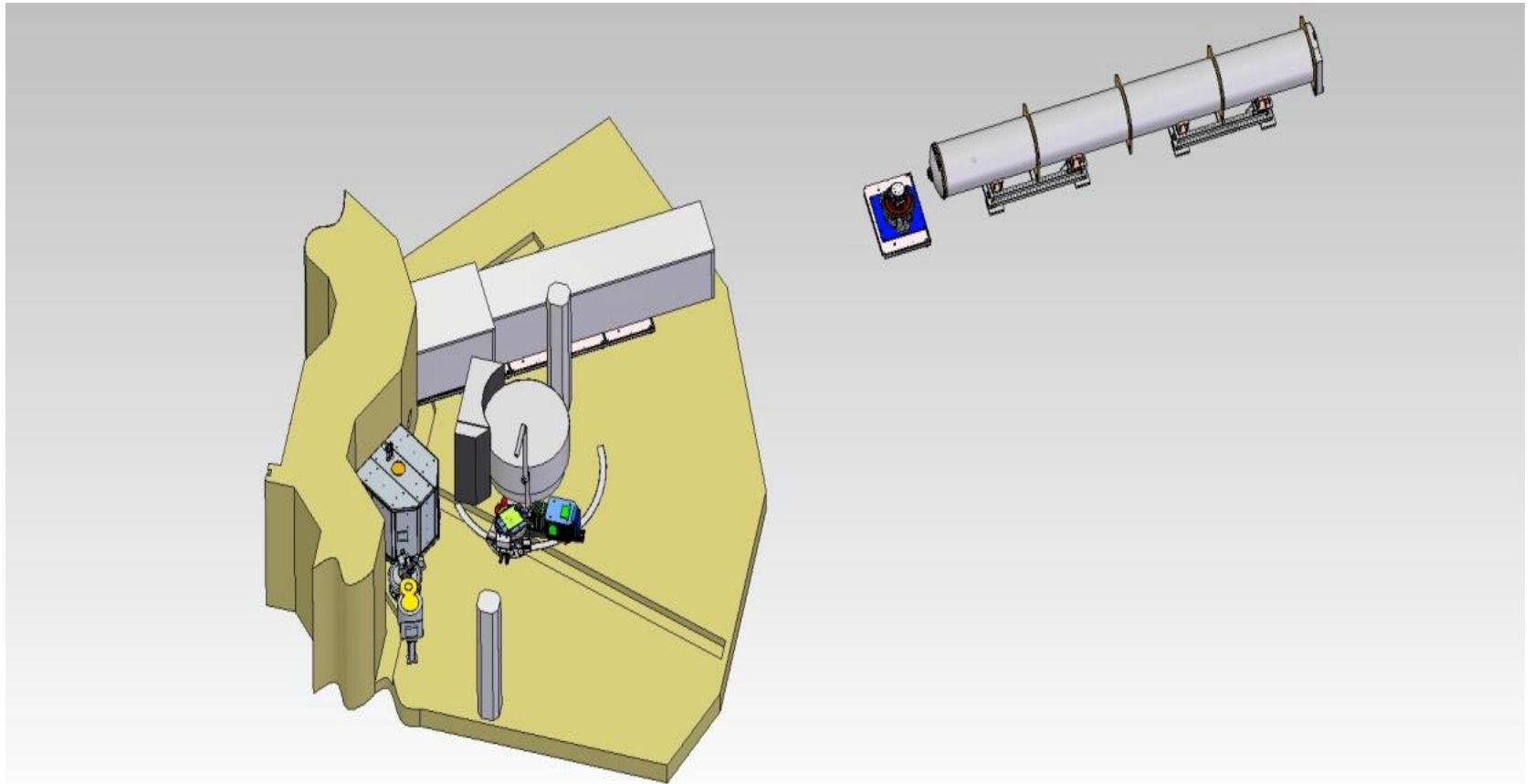


Present assignment of beam tubes at MNR





The usual question: Do we have enough room to place a full-size neutron spectrometer on the MNR beam floor?

The answer: See how L3 spectrometer would look like if transferred to MNR without modifications and maintaining all distances.

(Demonstration only: BP5 is currently assigned to positron beam facility)

Neutron scattering instruments we wish to have at MNR

1. SANS
2. General purpose diffractometer
3. Powder diffractometer
4. Reflectometer
5. Diffractometer for stress measurement

To satisfy the list above, neutron scattering needs 5 beam ports.

Current assignment of SANS to BP4 is good since it gives the longest beam path.

Reflectometer is best served by a large beam port, which means BP2 or BP5.

Diffractometers could use any beam port.

Powder Diffractometer at MNR

Vast majority of experiments on C2 powder diffractometer require either 2.37 or 1.33 Å neutrons. On C2, both wavelengths are obtained at $2\theta_m = 92.74^\circ$, using Si(113) or Si(531) reflections of the monochromator. We aim to replicate the same capability at MNR.

Mirrotron has agreed to develop a detector that meet our requirements. The expected performance of the detector are as follows.

Detector radius = 1.5 m

Vertical window size = 300 mm

Total range in $2\theta = 120^\circ$

Wire spacing = 2.5 mm

Vertical resolution (along each wire) = 10 mm

Reflectometer at MNR

Assuming BP2 or BP5 is available, all components of the D3 reflectometer can be redeployed except the monochromator cave.

Expected performance is then proportional to core flux of MNR.