JASMIN in FTBF

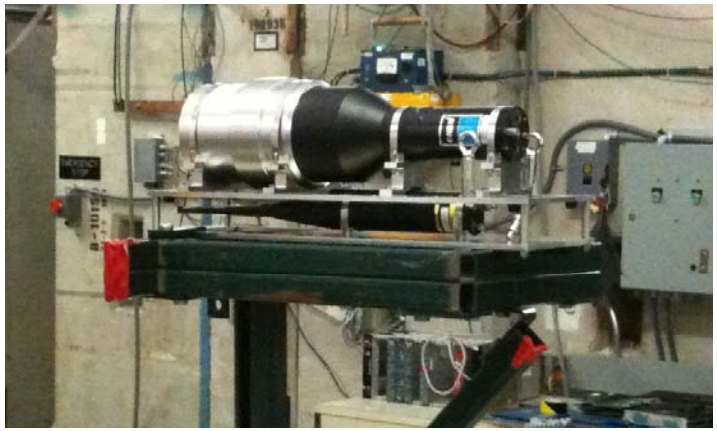
T.Sanami on behalf of JASMIN collaboration

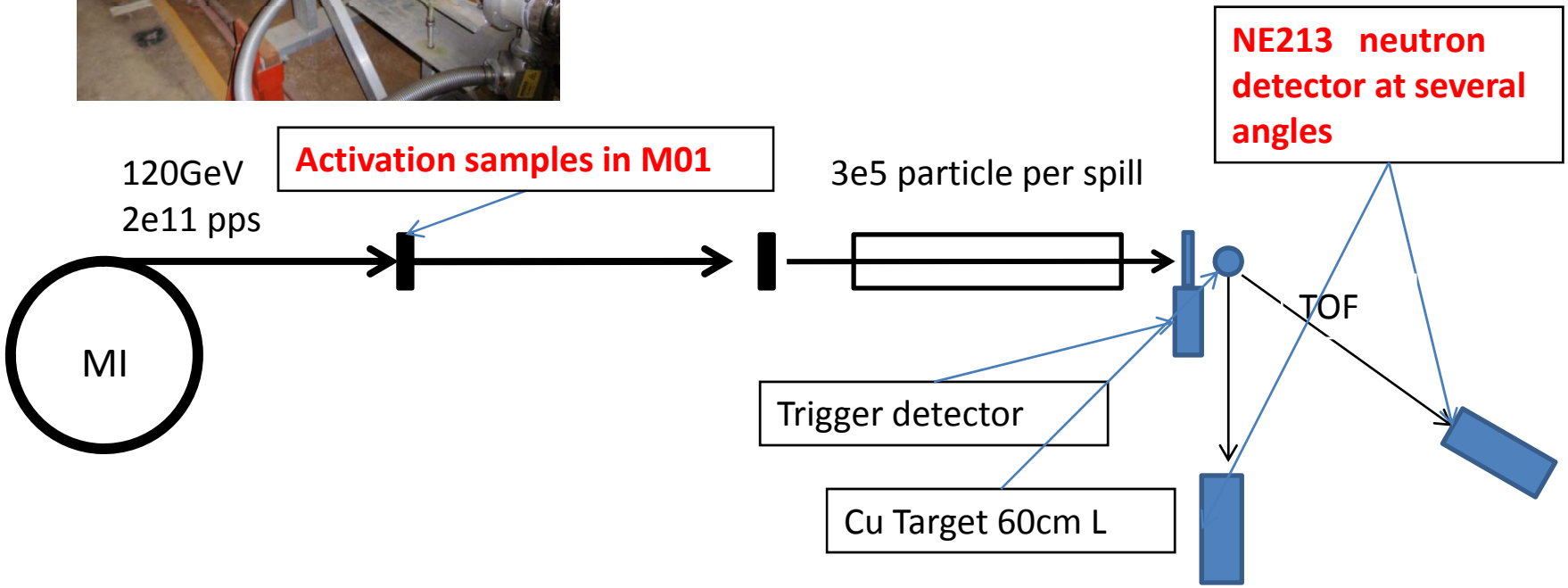
JASMIN experiment

- JASMIN – Japanese and American Studies for Muon Interaction and Neutron
  - Pbar production target
  - NuMI muon alcoves
  - Mtest
- MOU: T994
- Basic data for Radiation Safety
  - Neutron production for 120 GeV proton
  - Activation, mass yield for 120 GeV proton
  - Benchmark of simulation codes
- First beam time: Feb.11-17 2010

Program on Mtest Feb. 2010

1. **Activation measurement**
2. **Counter measurement**





Highlight of last beam time (activation)

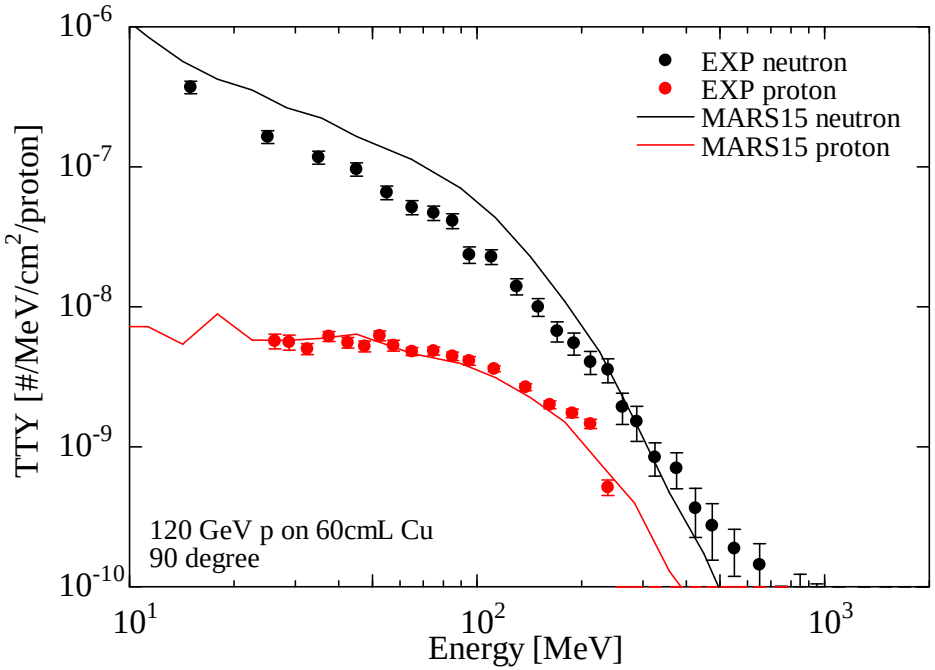
proton flux by $^{27}Al(p,3pn)^{24}Na$ reaction

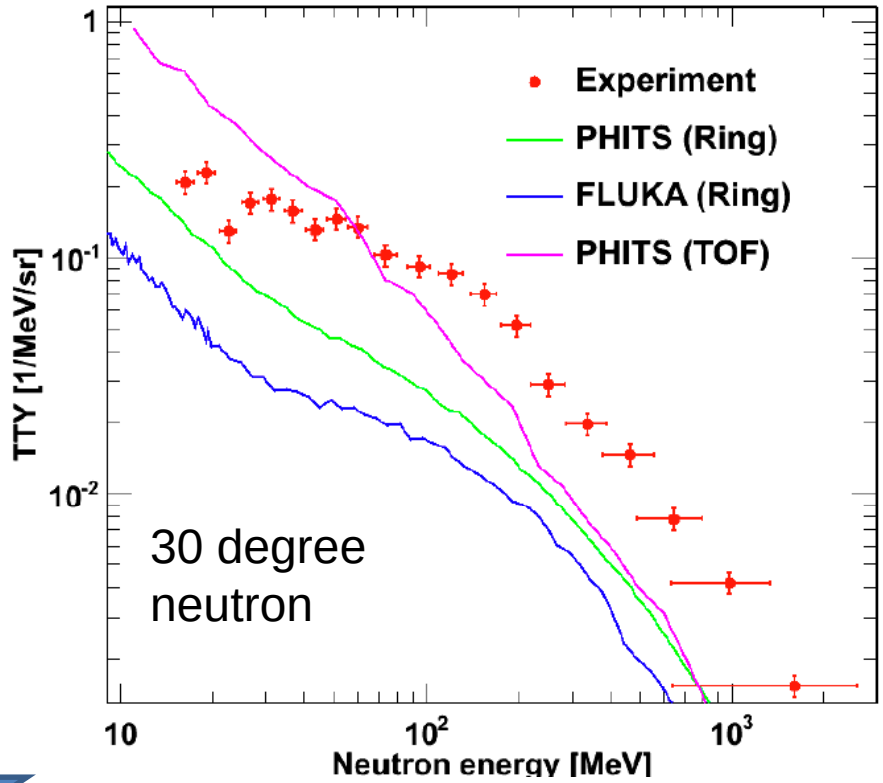
	Al monitor		SEM
irradiation	average beam current[p/s]	error[p/s]	average beam current[p/s]
Cu	1.9E+09	1.7E+08	1.8E+09
Co	6.7E+08	6.2E+07	6.4E+08
Ni	1.6E+09	1.4E+08	1.3E+09
Al	1.7E+09	1.6E+08	1.3E+09
Au	1.7E+09	1.5E+08	9.7E+08

By Hiroshi Yashima

- Experiment with sample sets of different thicknesses / materials

Highlight of last beam time (counter)

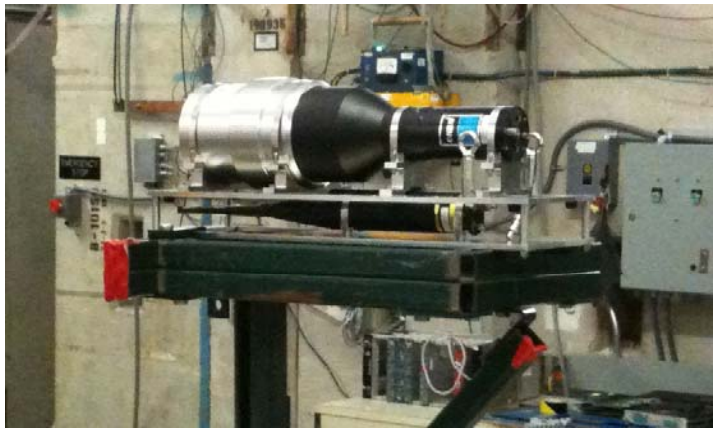


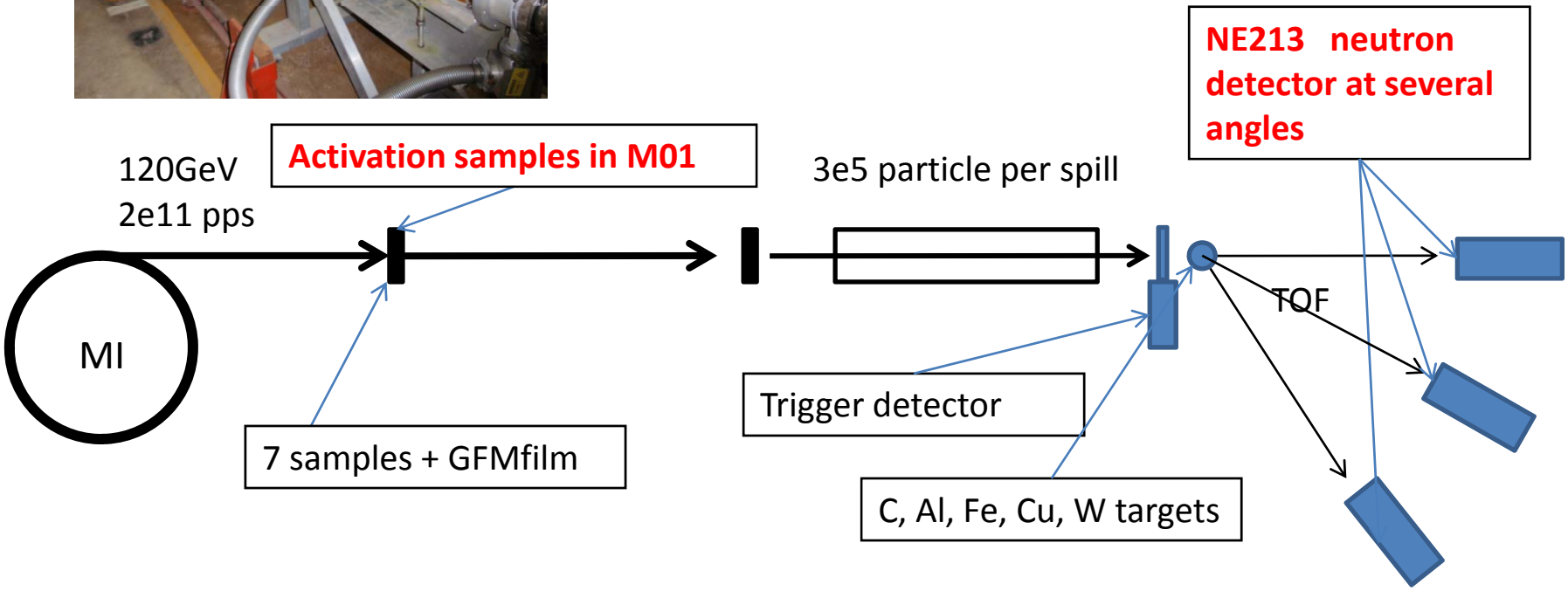


- Experiment with more target, angles using several detectors with removing room scattering effects, for systematic comparison

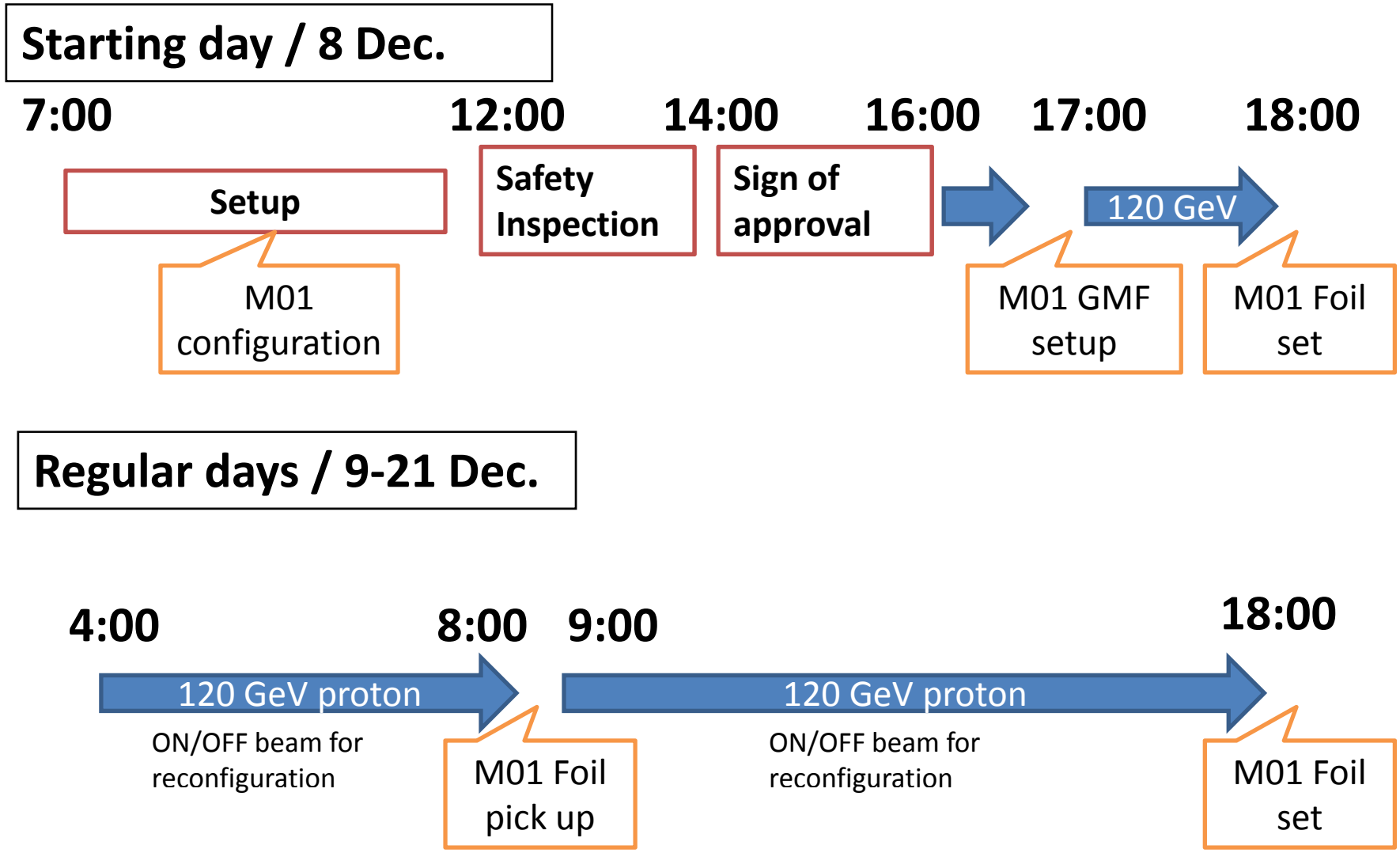
Dec. 2010 program on FTBF

1. **Activation measurement**
2. **Counter measurement**





Beam operation plan (TBD)



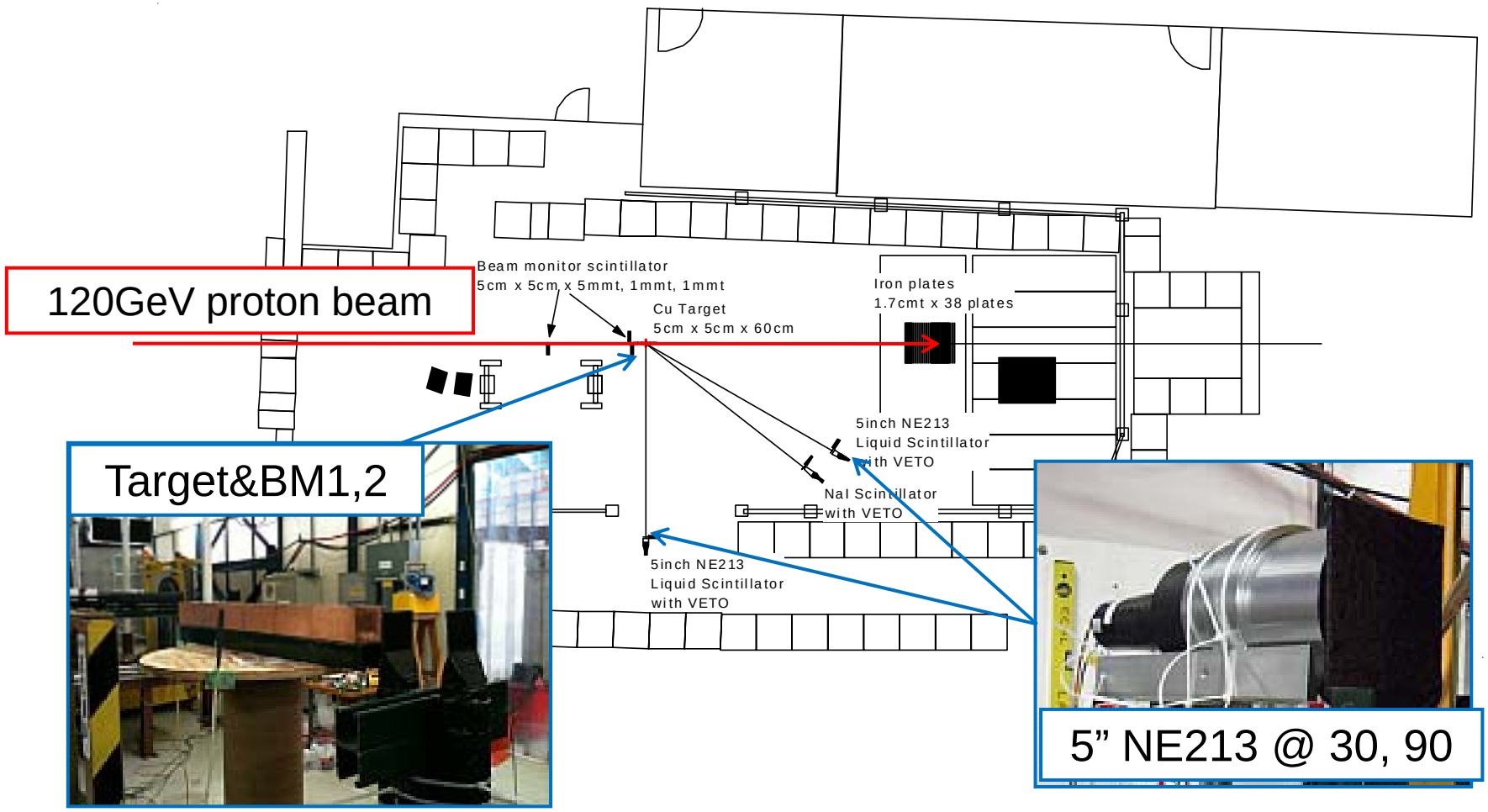
Request for M01 experiment

- Support for
  - M01 access (two times per day, typically, 8 days)
  - M01 access to confirm setup (1 time, until Dec.8)
  - Beam tuning (2E11 at center position) and monitoring(SEM recording)
  - M01 access and 30 min irradiation for GFMfilm (2 times, Dec.8)
  - M01 access and 4 hours irradiation for Foils (7 x 2 times, Dec.8)
  - transport foils from M01 to HIL (5 times)
  - transport foils from M01 to AP0 (2 times)

Request for MT6 experiment

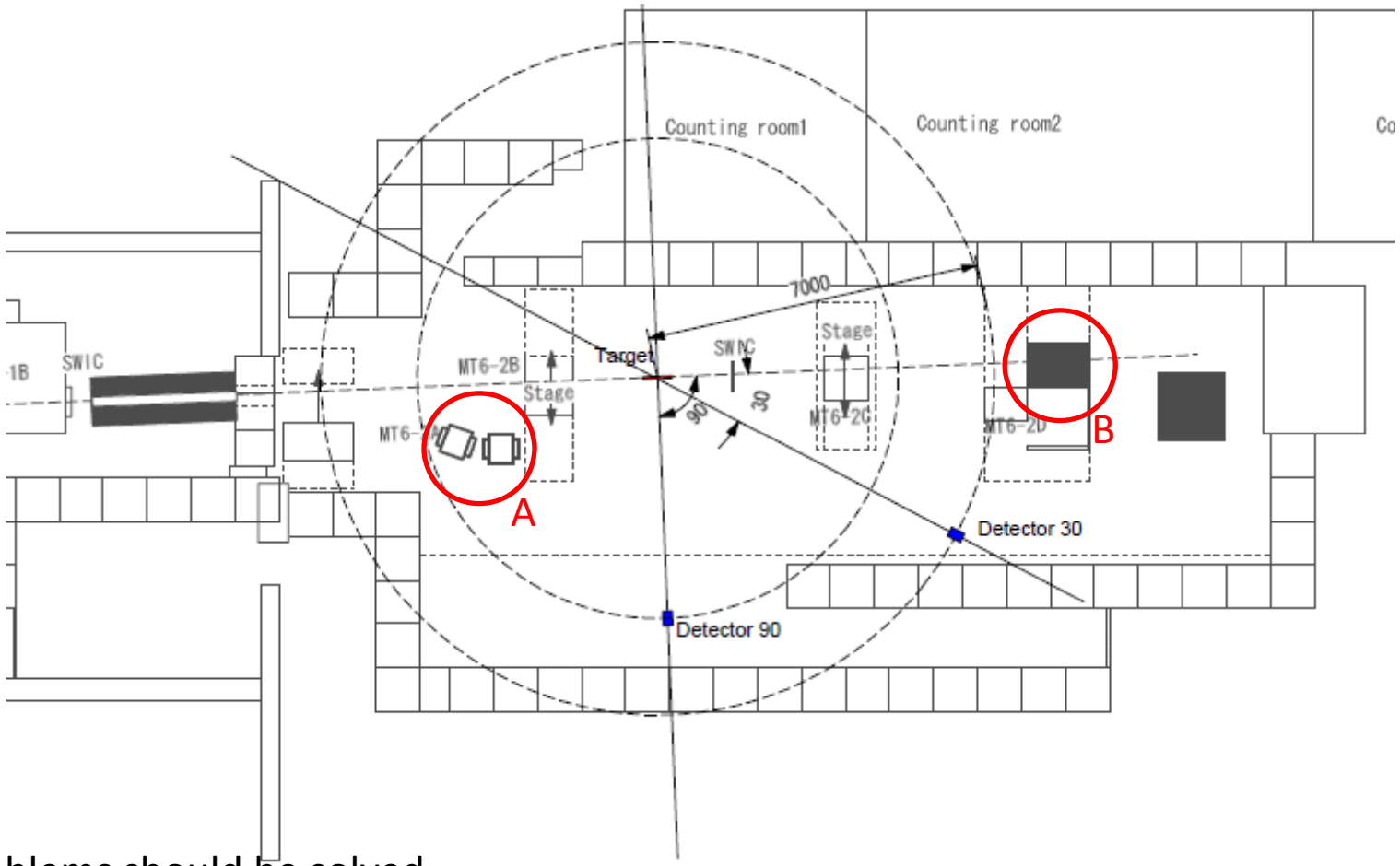
- Support for
  - Setting up shadow bar (iron blocks, 10x10cm^2 x 100cm L)
  - Move out “Calorimeter on yellow stage” from beam line
  - Move out magnets and other massive objects from MT6-2
  - Operation of three SWICs with MT6-1,2
  - Put back Copper blocks
  - 4 NIM bins
  - Approval to use check source, key, small Am-Be if available
  - To send back container when we finish experiment

Highlight of last beam time (counter)



2010 Feb setup (Setup for previous experiment)

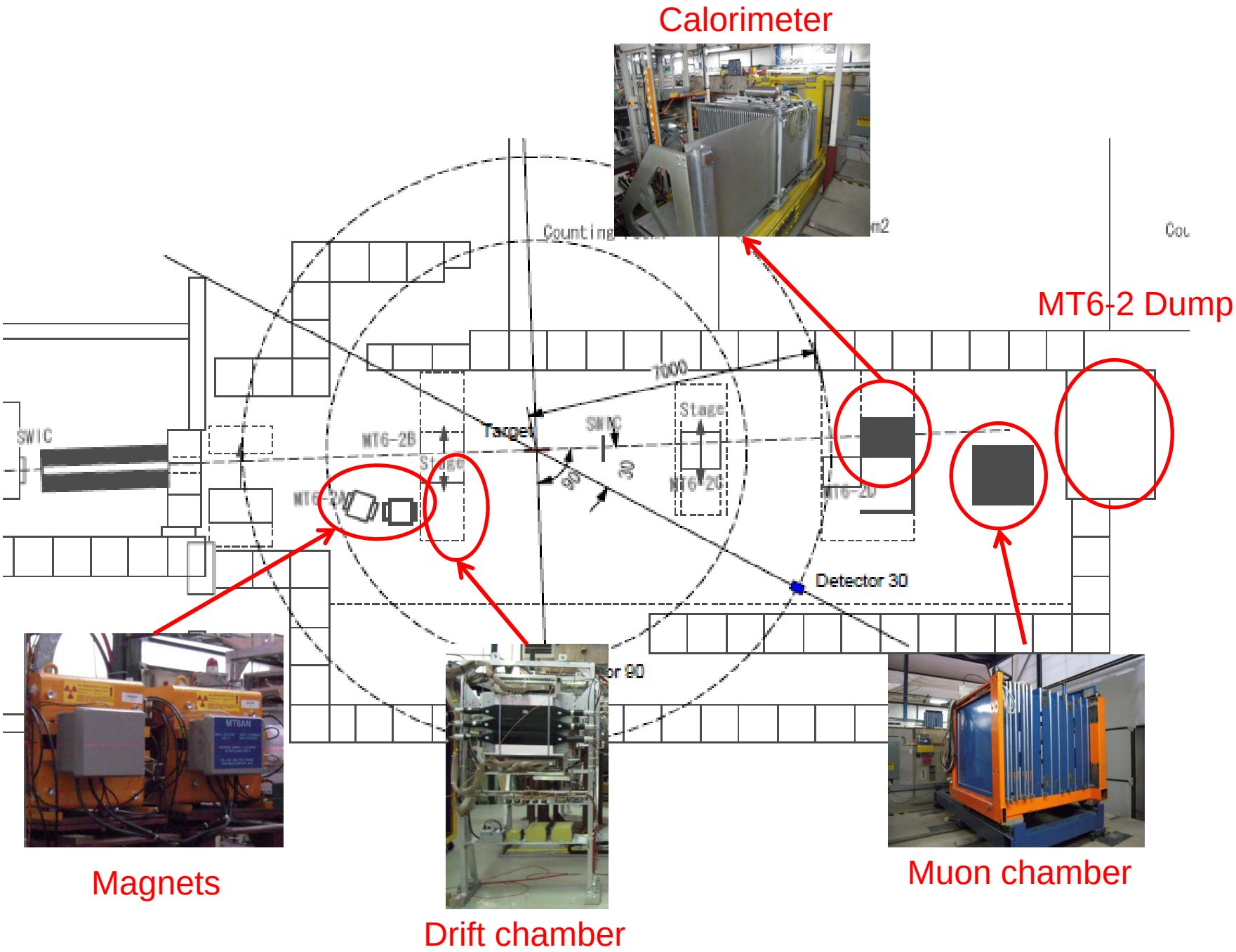
Detectors at 30 and 90 degree



Problems should be solved

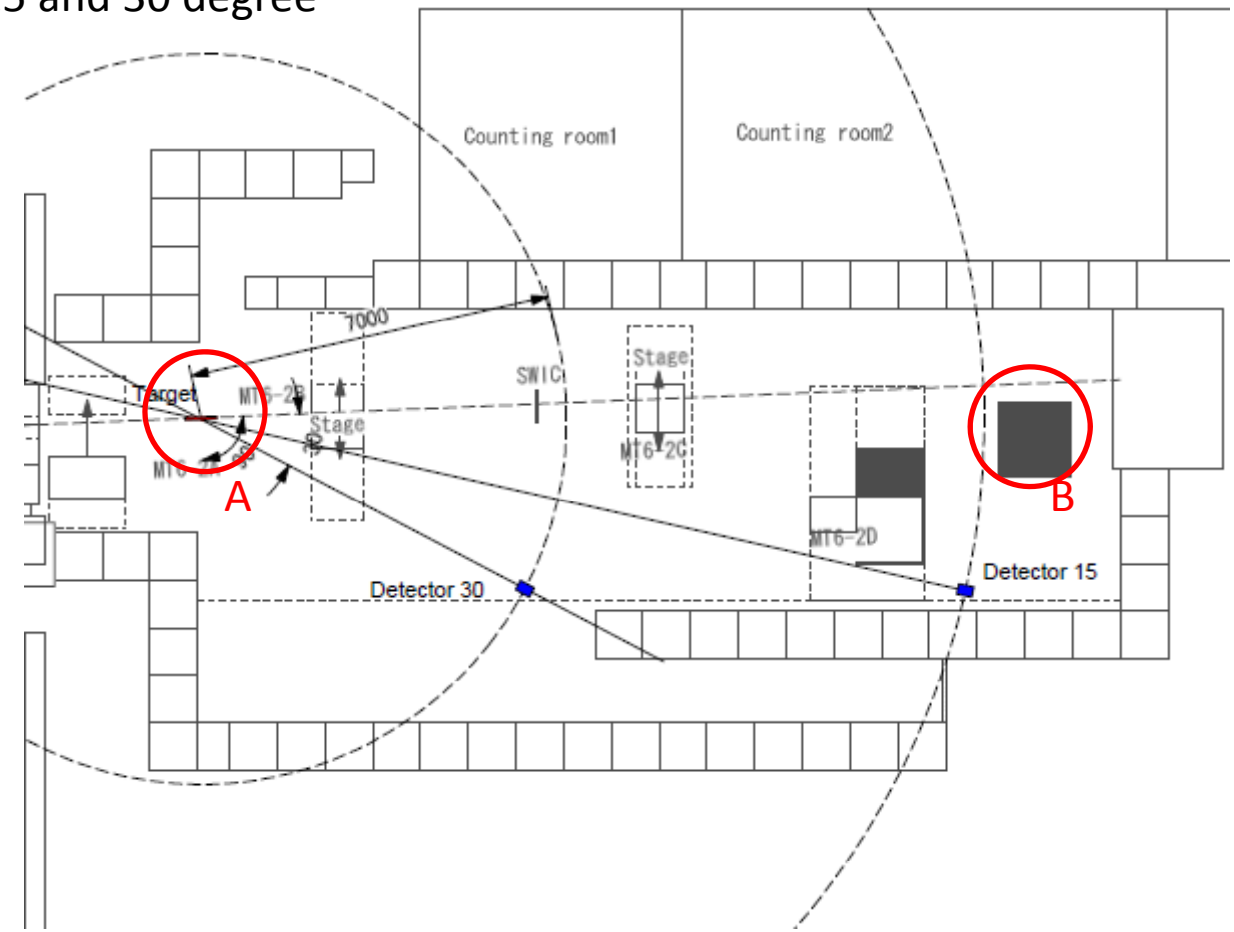
A: Magnets and related modules reduce flexibility of target and detector layout

B: Calorimeter acts as beam dump. It is too close to Detector 30.


Calorimeter
MT6-2 Dump
Counting
SWIC
MT6-2B
Target
Stage
7000
SWIC
Stage
MT6-2C
MT6-2D
Detector 30
Magnets
Drift chamber
Muon chamber

2010 Dec setup (Setup for upcoming experiment)

Detectors at 15 and 30 degree



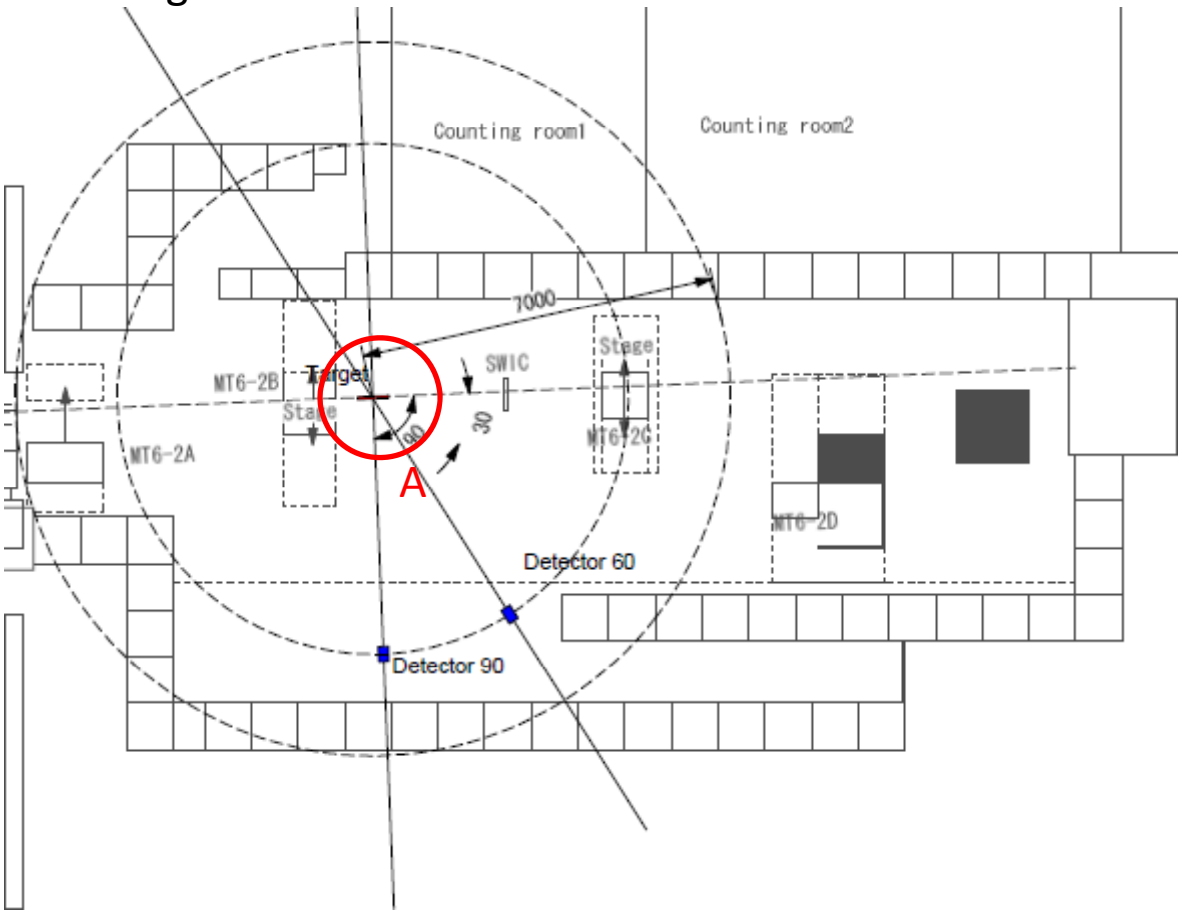
Remove magnets and Calorimeter

A: Target will be placed at MT6-2A instead of MT6-2C. The position permits forward angle setup with long flight path

B: Calorimeter acts as shield of radiation from beam dump

2010 Dec setup (Setup for upcoming experiment)

Detectors at 60 and 90 degree

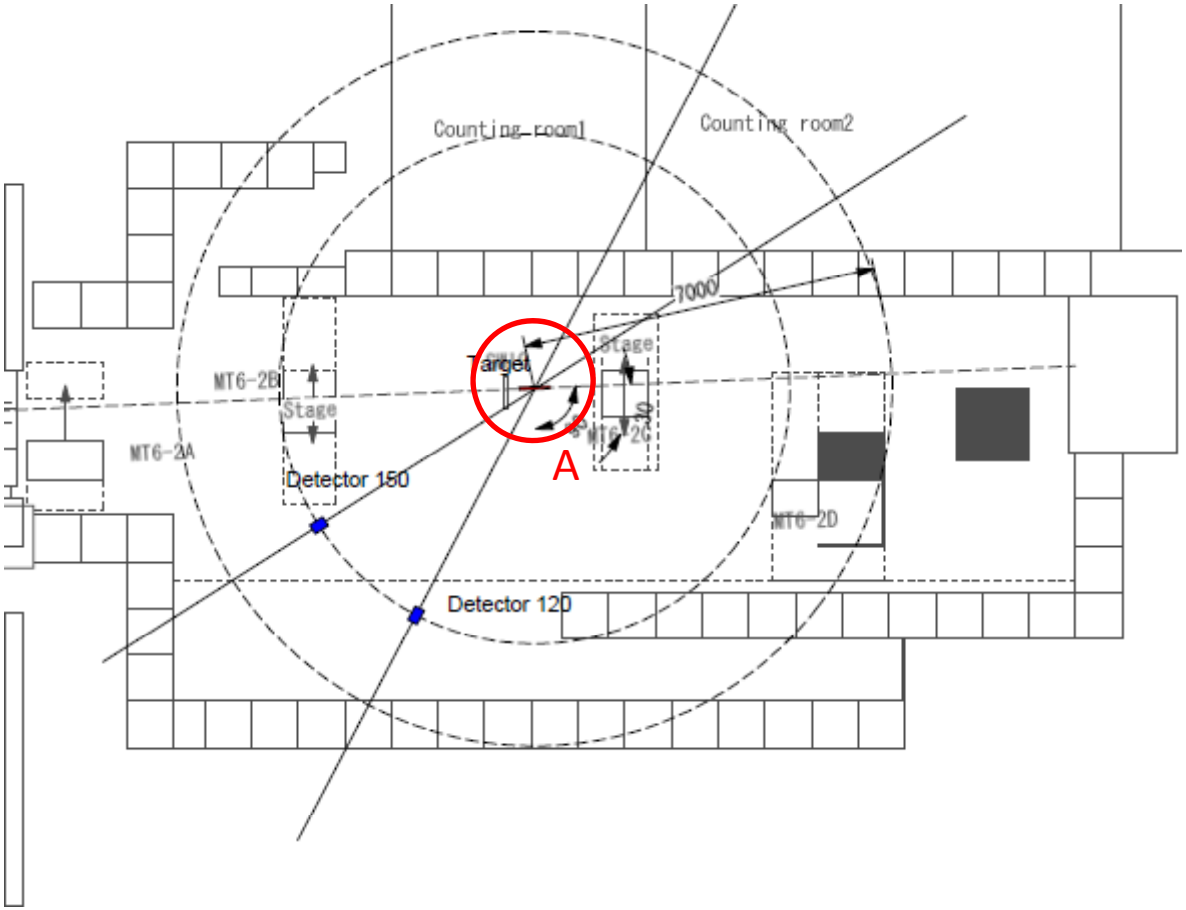


Remove magnets and Calorimeter

A: Target will be placed just upstream MT6-2C to permit 60 and 90 degree detectors

2010 Dec setup (Setup for upcoming experiment)

Detectors at 120 and 150 degree



Remove magnets and Calorimeter

A: Target will be placed at MT6-2C to permit 120 and 150 degree detectors