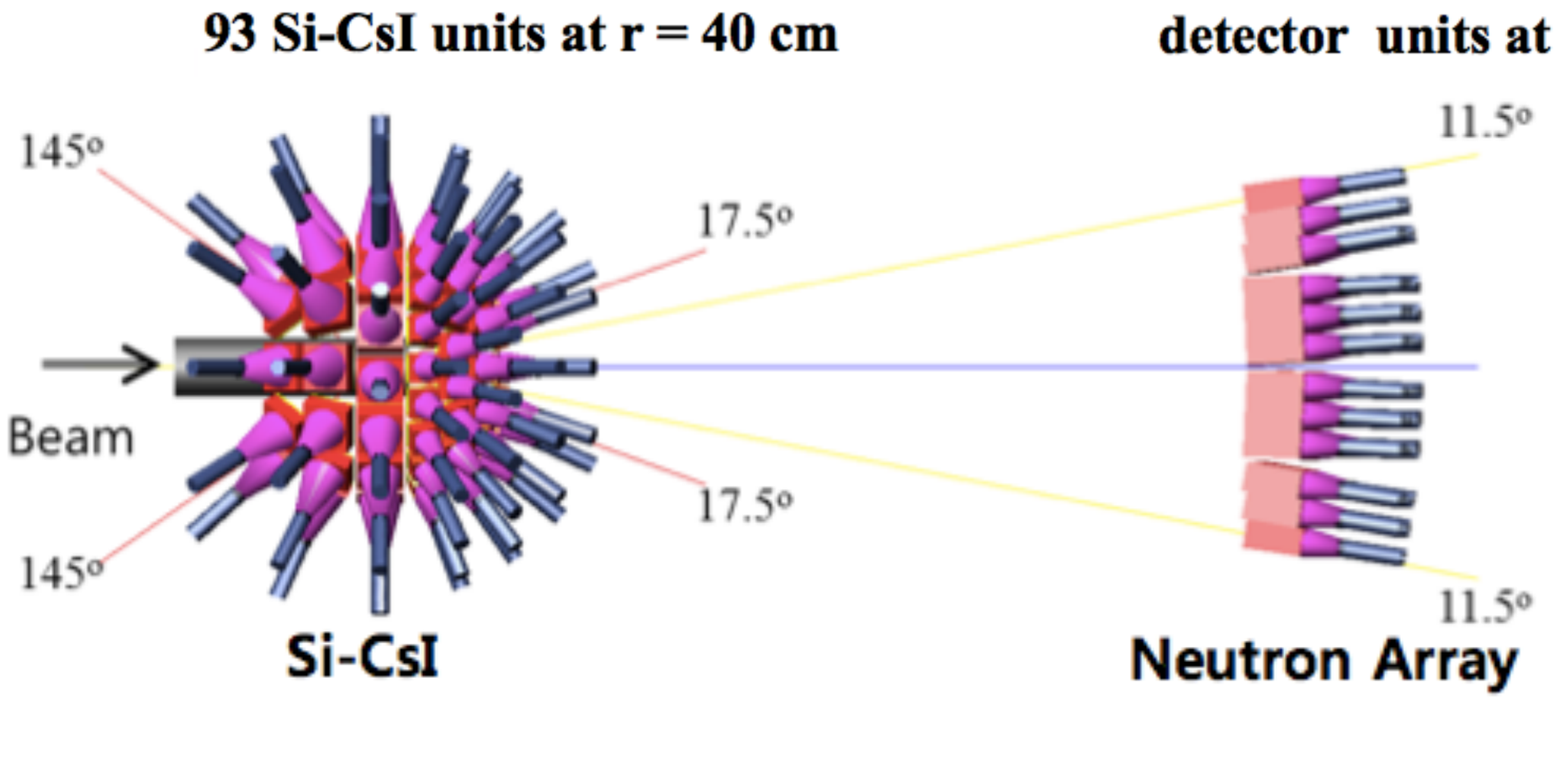
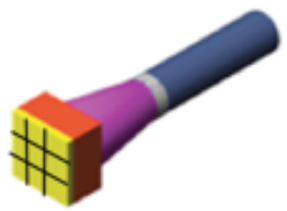
Large Acceptance Multi-Purpose Spectrometer (LAMPS) - low energy

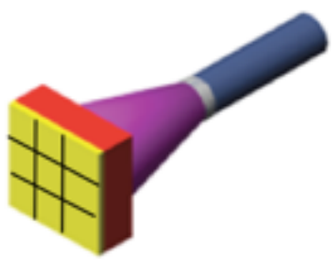


SiCsI Geometry

Total 58 detector units
($17.5^{o} < \theta_{lab} < 77.5^{o}$)
9 x 9 x 0.01 cm^3 Si (3 x 3 Pad)
9 x 9 x 5 cm^3 CsI (PMT readout)



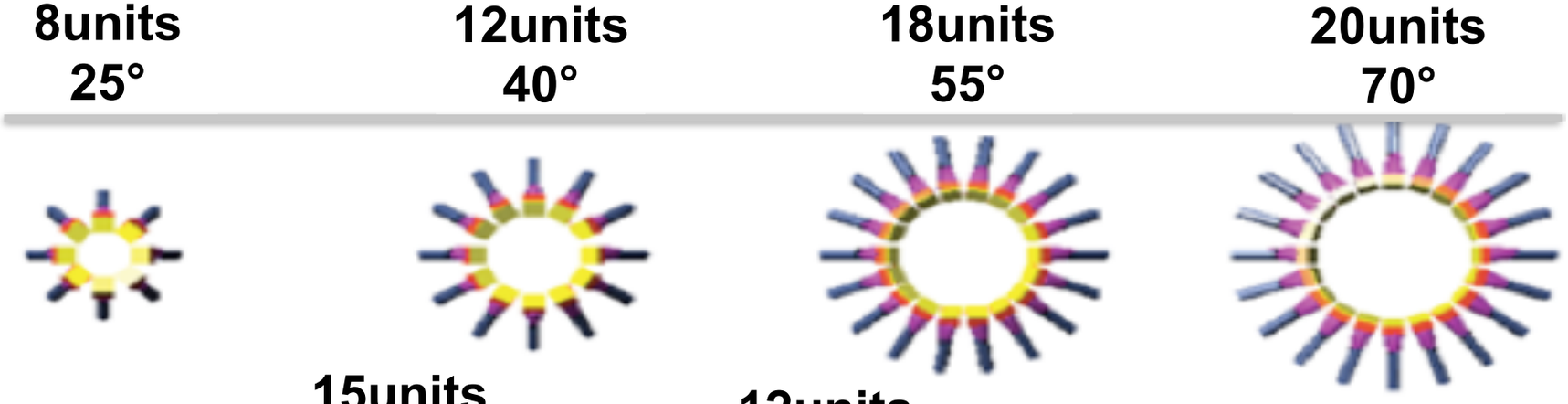
Total 35 detector units
($78^{o} < \theta_{lab} < 150^{o}$)
15 x 15 x 0.01 cm^3 Si (3 x 3 Pad)
15 x 15 x 5 cm^3 CsI (PMT readout)



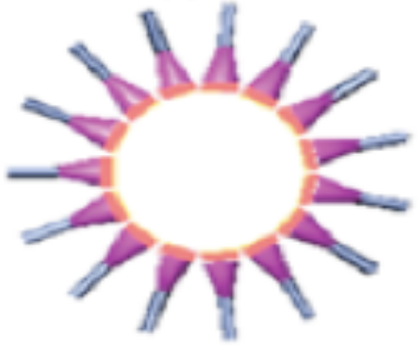
CsI(T1) cover polar angle 17.5° ~ 150°
17.5° ~ 77.5° : 4 detector pieces
(15° interval)

78° ~ 150° : 3 detector pieces
(24° interval)

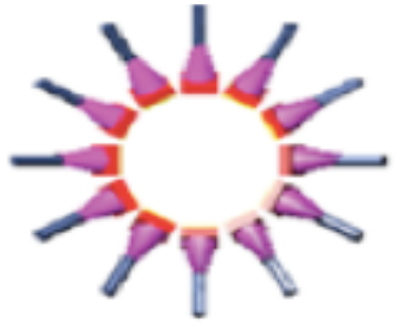
8units **12units** **18units** **20units**
25° **40°** **55°** **70°**



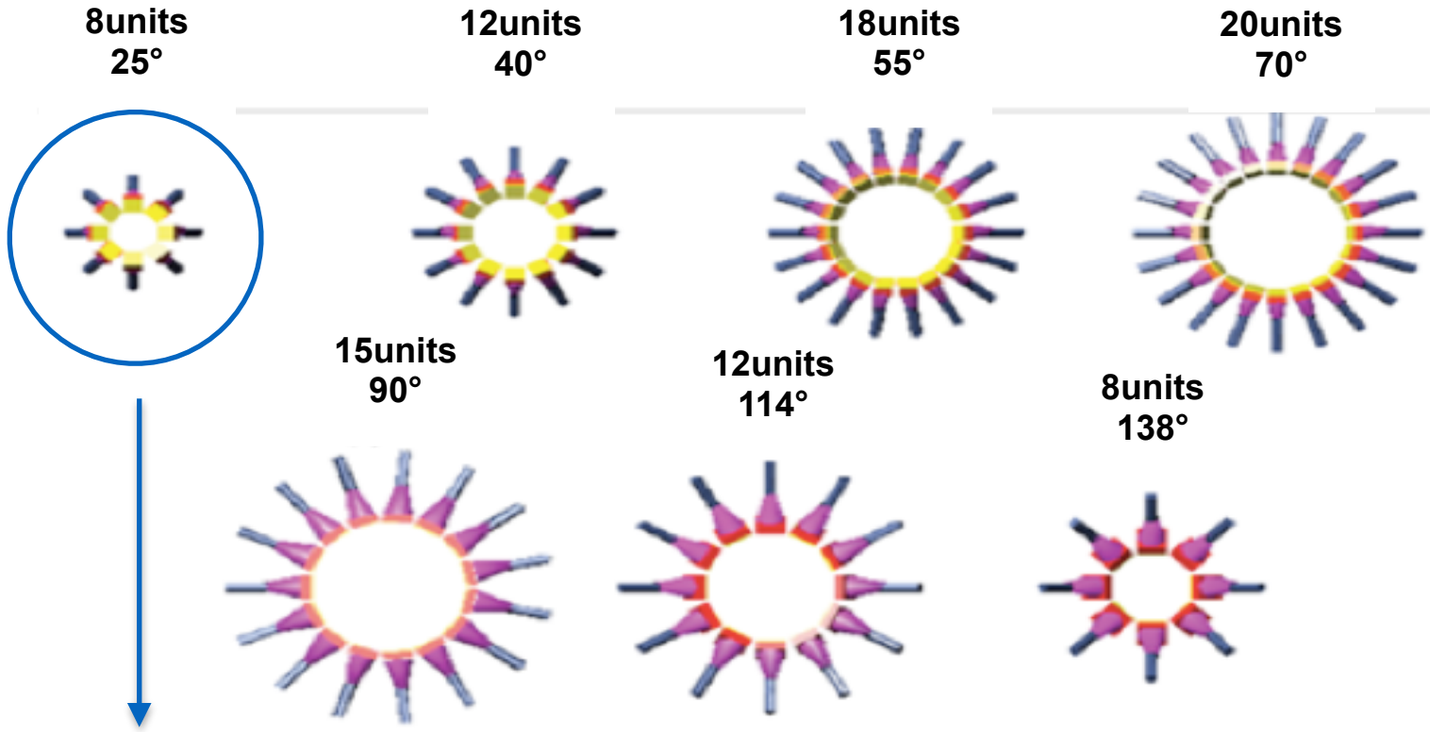
15units
90°

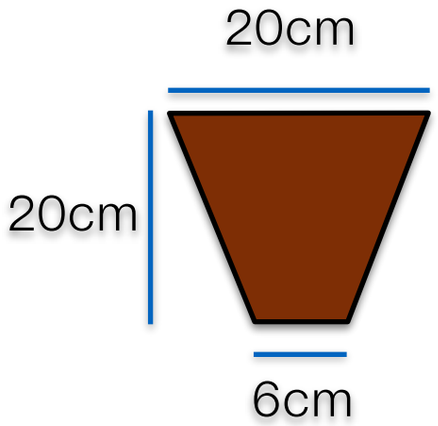


12units
114°

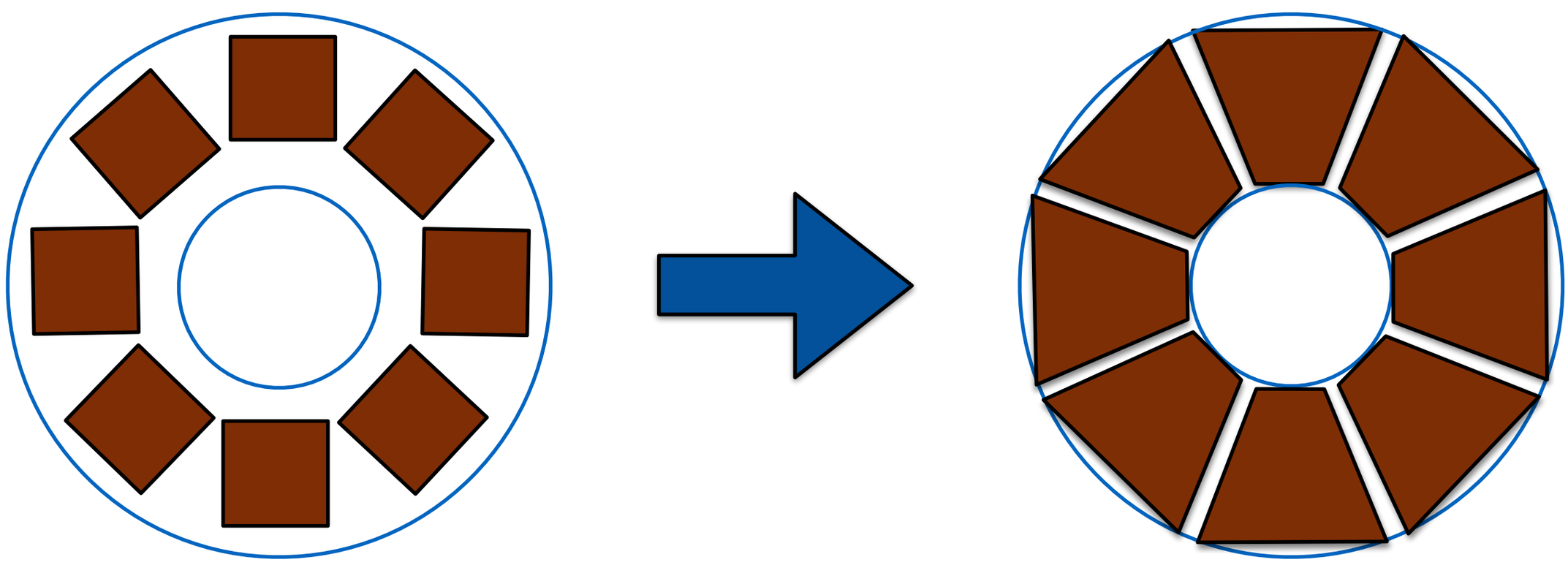


8units
138°





<View from target>



Problem

1. Acceptance (1st ring) : 31.7%

2. Acceptance changed geometry (1st ring) : 57.7%

3. Neutrons included in hits -> Change code

4. Simulated again (changed code) : same result

5. Generate only charged particles : same result

Plan

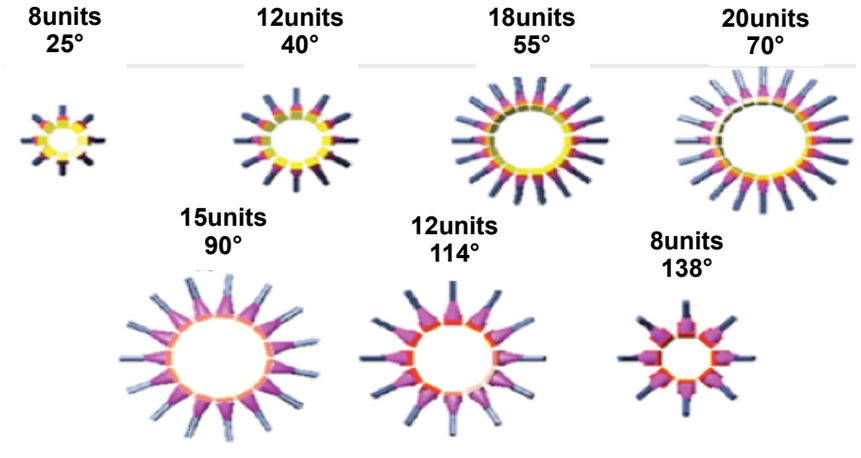
1. Check hit reconstruction acceptance for each proton number

2. Check acceptance for sphere geometry

3. Check the acceptance with a random theta & energy distribution for each particle

Back- up

Acceptance



	Generator <N(△θ)>	Detector <N(△θ)>	Acceptance
Ring1 (17.5°<θ<32.5°)	2.67		
Ring2 (32.5°<θ<47.5°)	1.98		
Ring3 (47.5°<θ<62.5°)	1.71		
Ring4 (62.5°<θ<77.5°)	1.17		
Ring5 (78°<θ<102°)	1.10		
Ring6 (102°<θ<126°)	0.56		
Ring7 (126°<θ<150°)	0.25		
All	9.44		