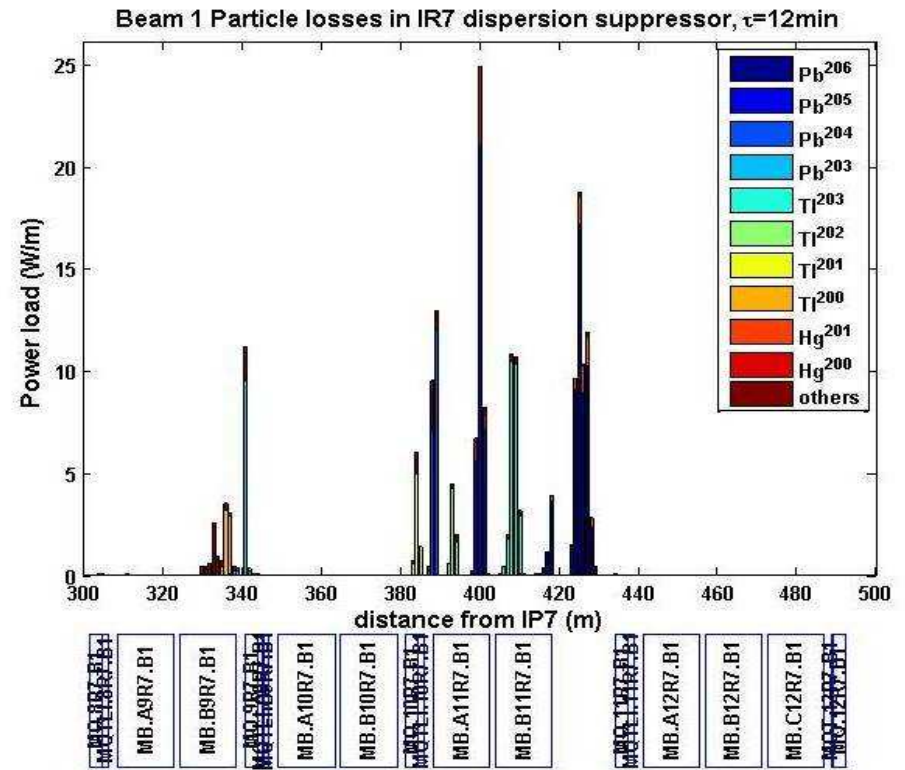
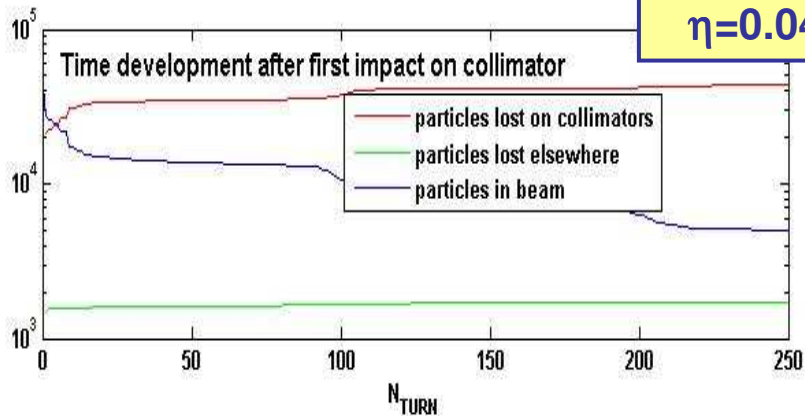
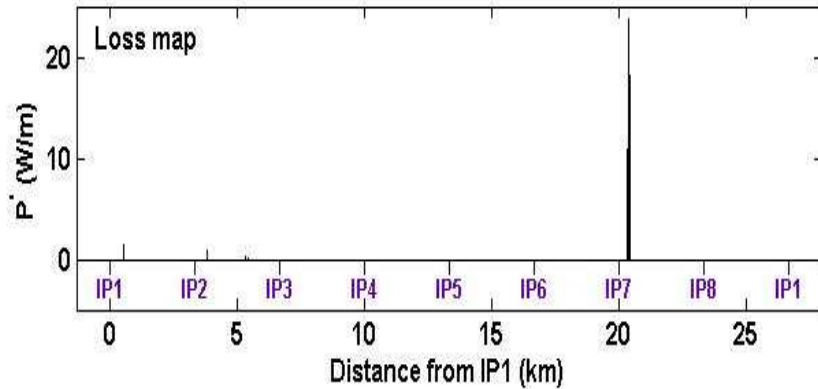
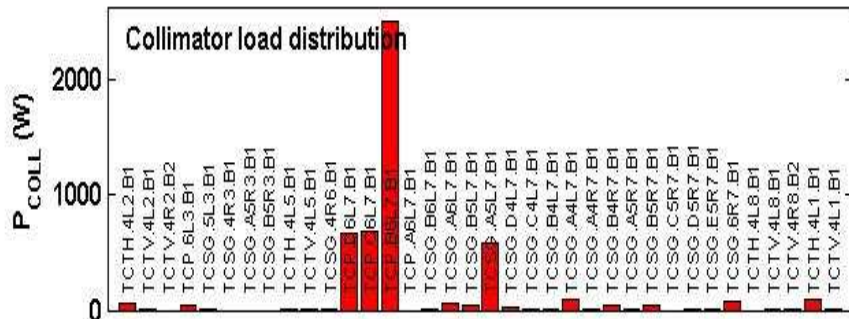


Proposed locations of BLMs at IR7 for ion losses

G.Bellodi, H.Braun

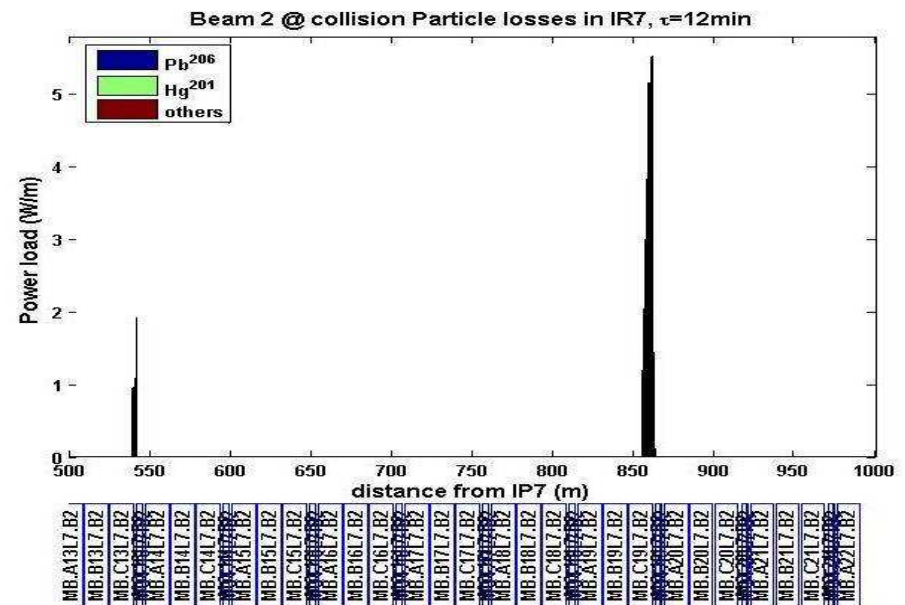
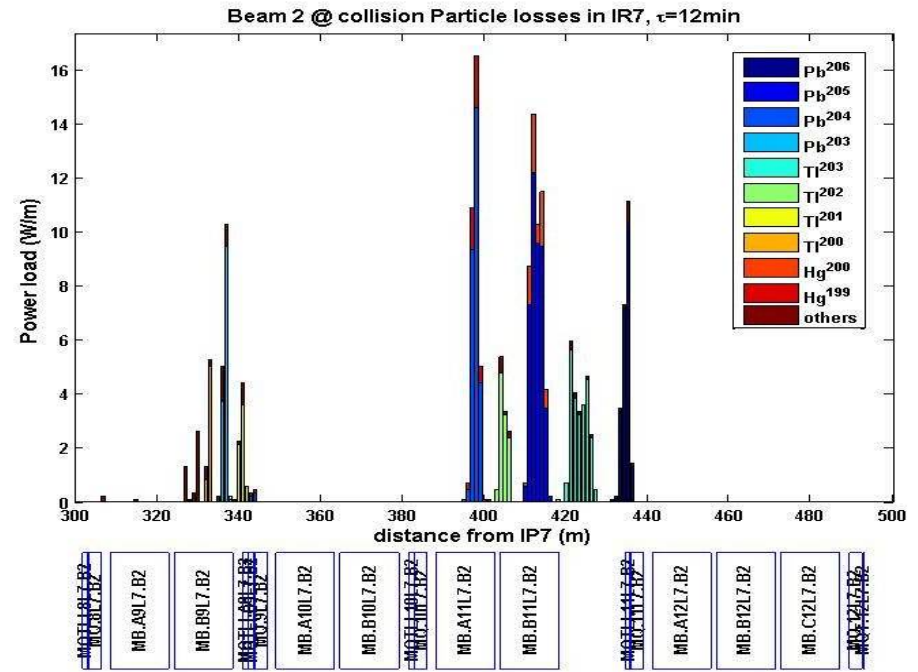
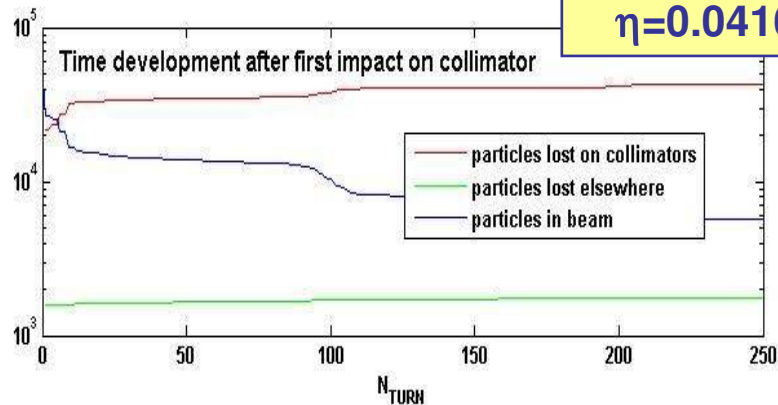
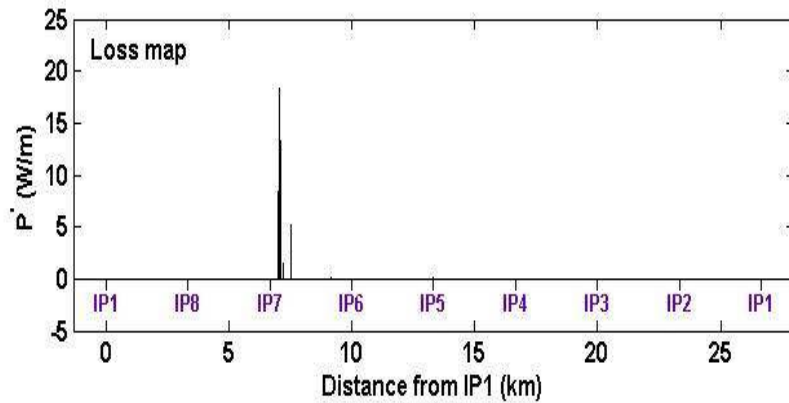
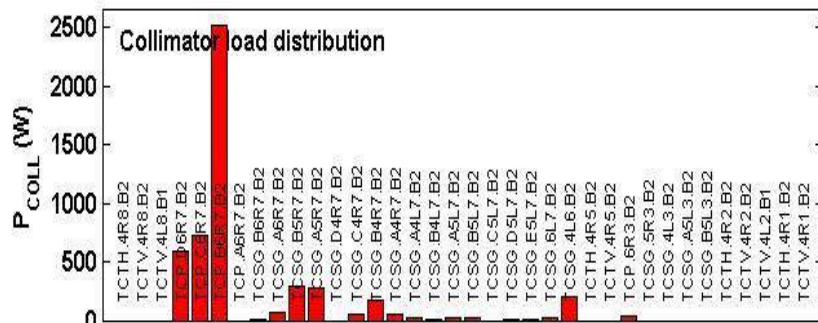
Beam1 @ nominal collision



Losses confined to IR7 dispersion suppressor, cells 9 & 11

Few small losses in IR2 (mainly blocked by tertiaries)

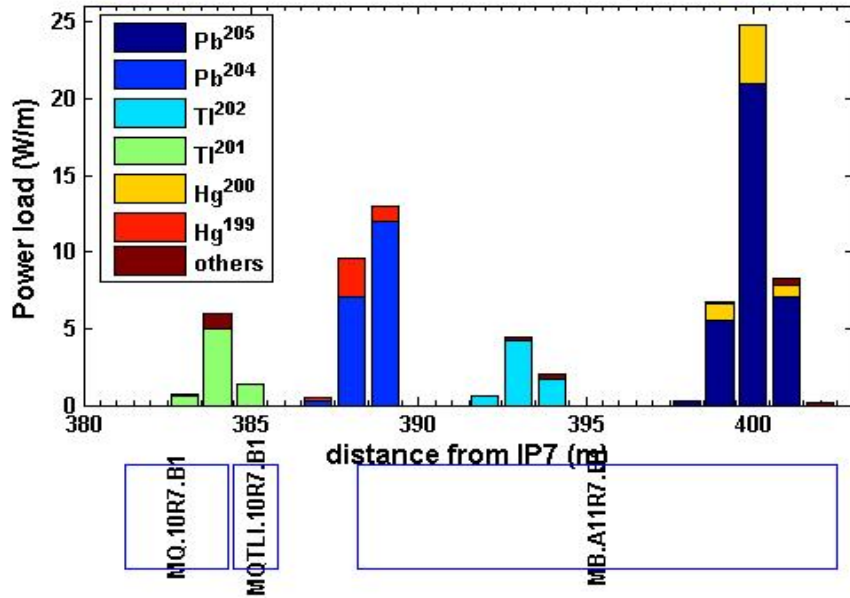
Beam2 @ nominal collision



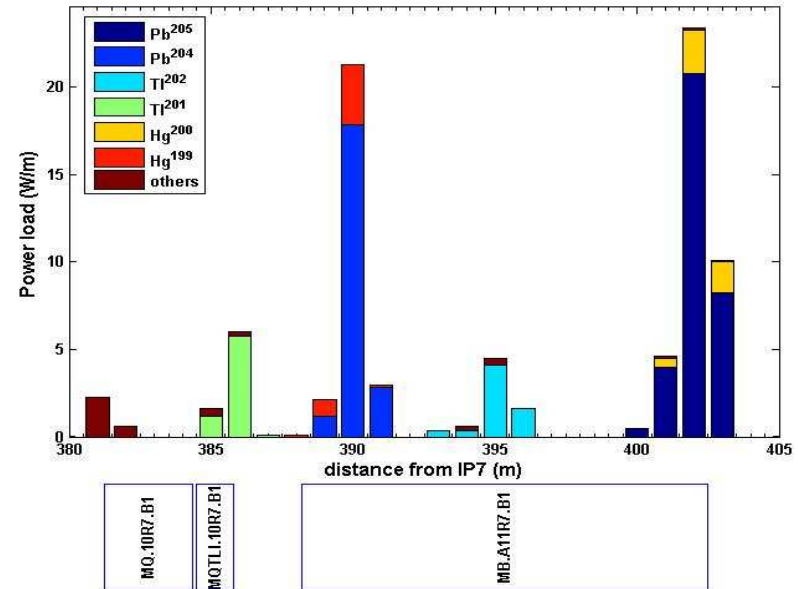
Aperture sensitivity : nominal

+1 mm

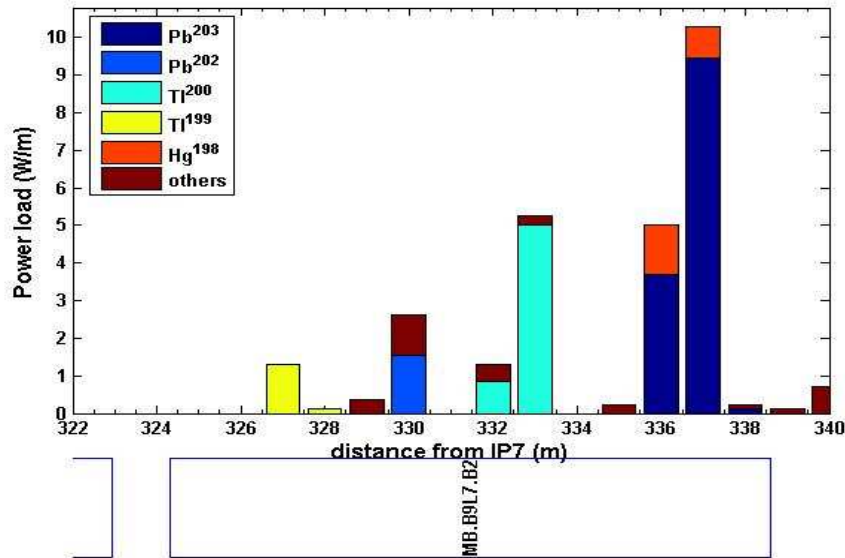
Beam 1 Particle losses in IR7 DS, $\tau=12\text{min}$



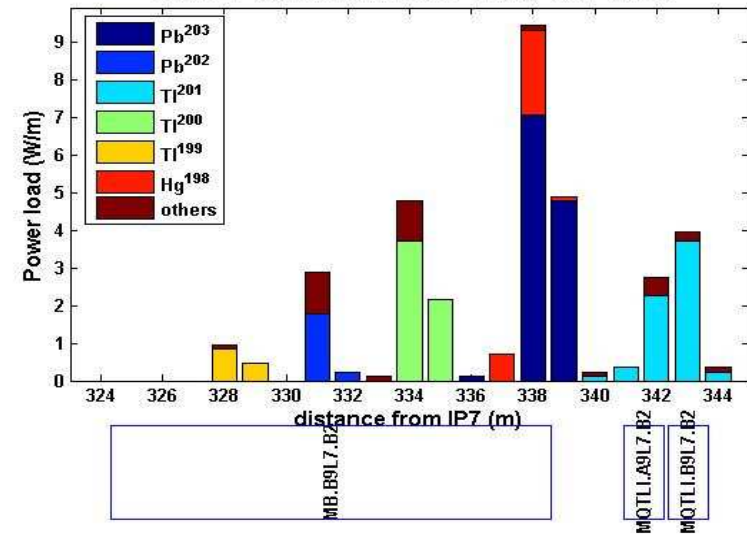
Beam 1 Particle losses in IR7 DS (ap +), $\tau=12\text{min}$



Beam 2 Particle losses in IR7 DS, $\tau=12\text{min}$



Beam 2 Particle losses in IR7 DS (ap +), $\tau=12\text{min}$



BLMs coverage:

Philosophy :

Adding 1mm to aperture (all elements) causes a shift in the beam loss peaks by up to 2m

BLMs coverage of IR7:

3 patches available in cells 8,9,11 (dipoles) X 8 channels (max) X 2 BLMs

2 channels available on quad patches (regions 8,9,10,11,13)

Need tight coverage of cells 9-11

Numbers:

BLM active length = 40 cm

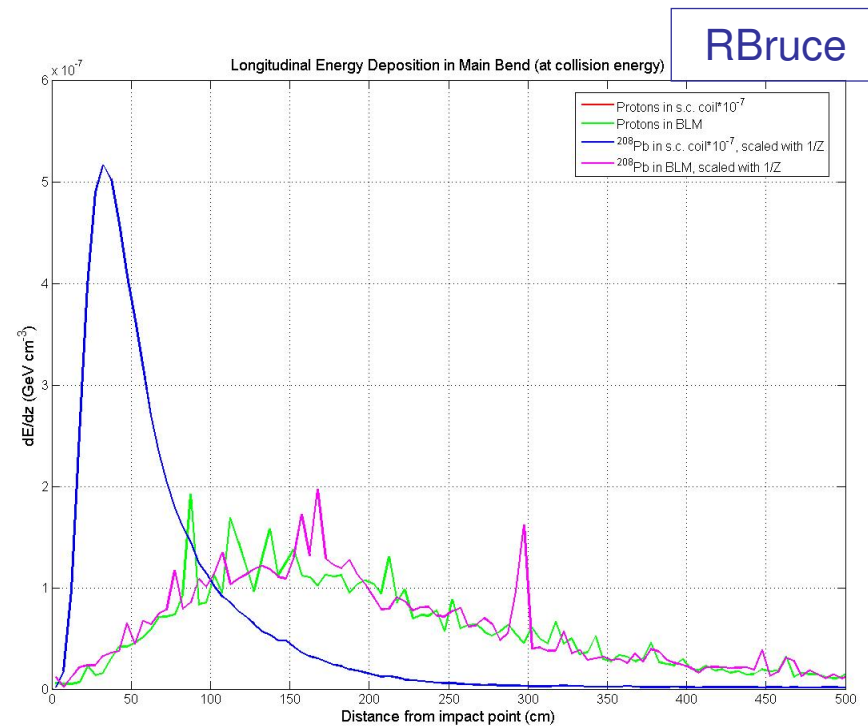
Dipole length = 14.3 m (x2)

Long. spread of energy deposition=

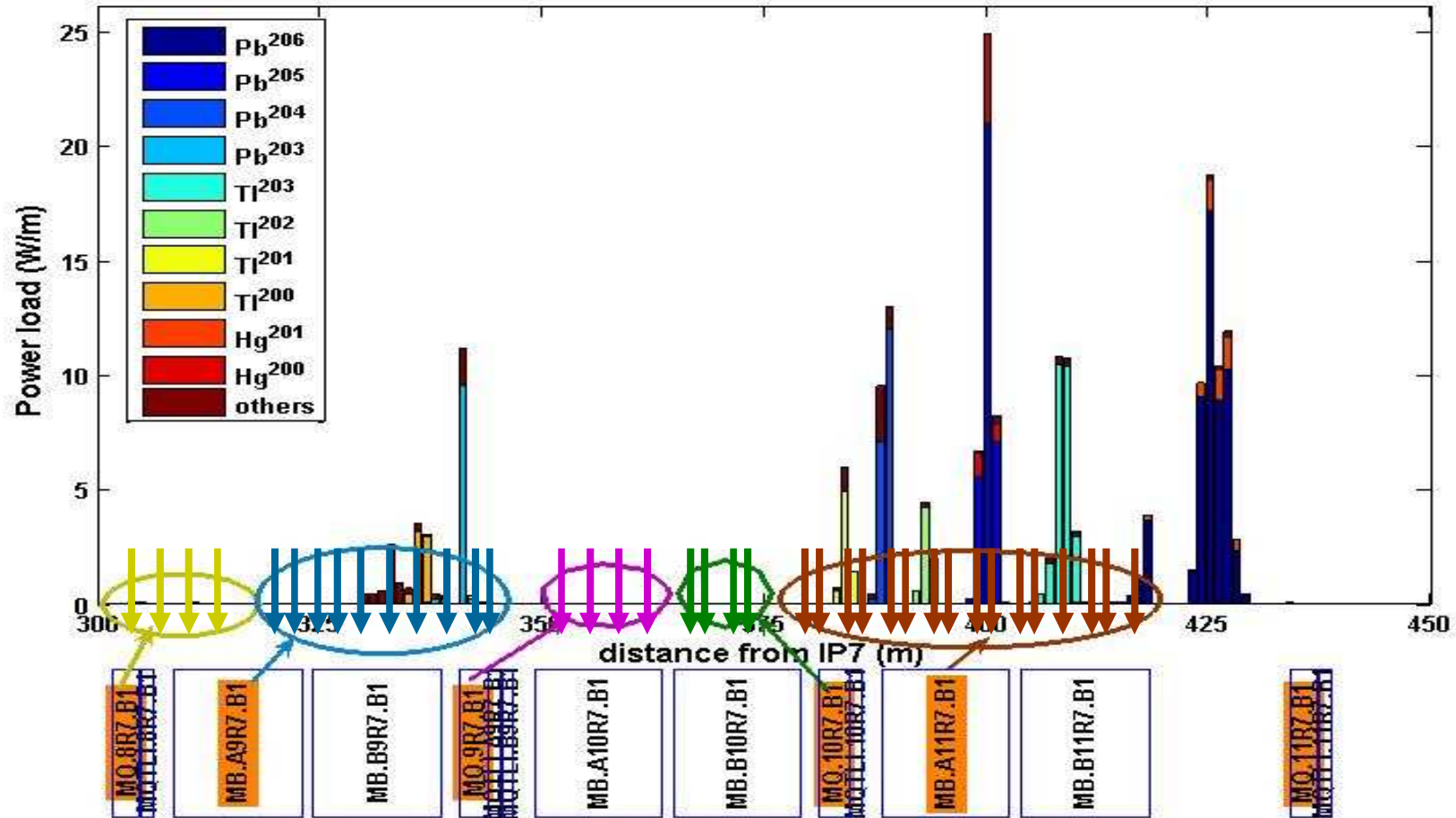
2.5 m FWHM

peak @ 1.5 m from impact

For coil deposition peak @ 30cm from
impact point

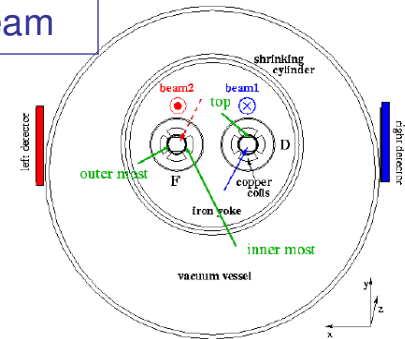


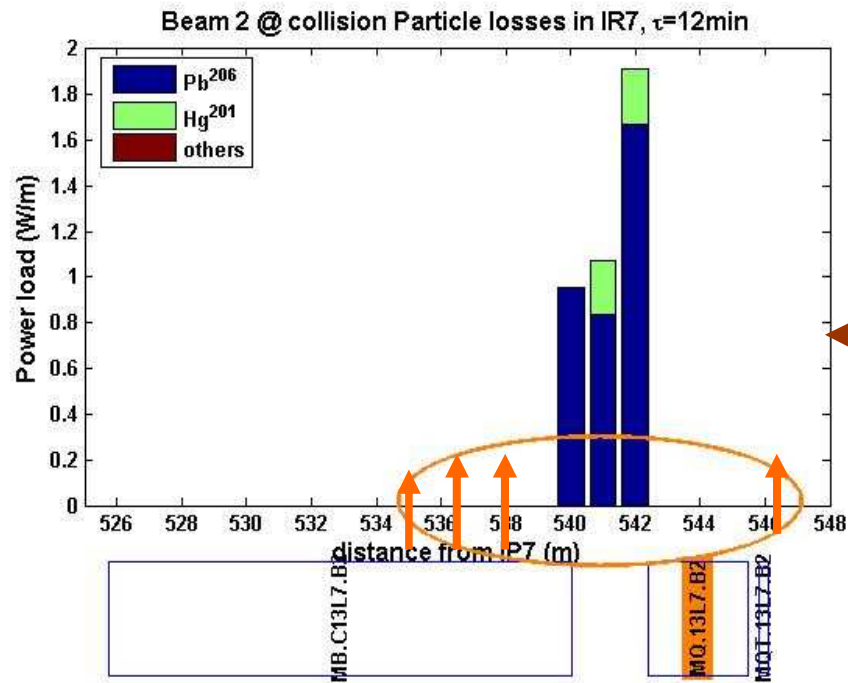
Beam 1 @ collision Particle losses in IR7, $\tau=12\text{min}$



B. Dehning's team

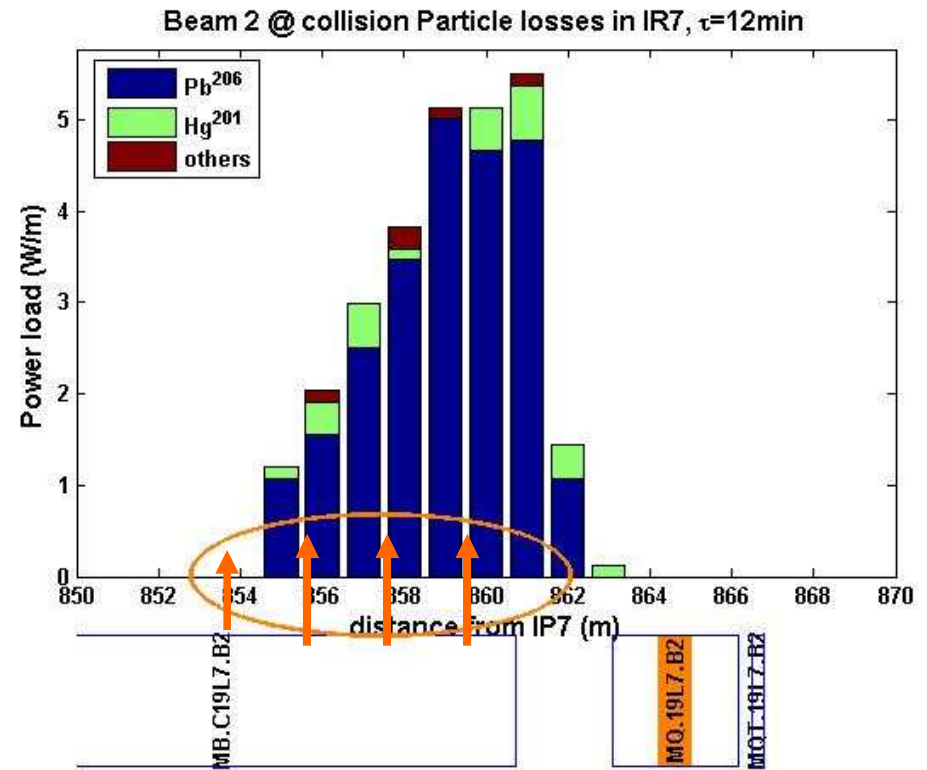
- 2.5 m spacing in cells 9,11 – but ~3.75 m in cell 10 at best
- Transverse position: inside (left) for beam2, outside (right) for beam1





Beam2, arc region

cell 19



Beam 1

BEAM	IP	SLOT	s(m) from IP7	Transv pos	MAD-X name	cold mass type
1	7	BJBAP.B8R7		Outside	MQ.8R7.B1	MQ.8R7
			307.5			
			310			
			312.5			
1	7	BJBAP.A9R7	315	Outside	MB.A9R7.B1	MBA.9R7
			317.5			
			320			
			322.5			
			325			
			327.5			
			330			
			332.5			
			335			
			337.5			
1	7	BJBAP.B9R7	340	Outside	MQ.9R.B1	MQ.9R7
			348			
			351.75			
			355.5			
1	7	BJBAP.A10R7	359.25	Outside	MQ.10R7.B1	MQ.10R7
			363			
			366.75			
			370.5			
1	7	BJBAP.A11R7	374.25	Outside	MB.A11R7.B1	MBA.11R7
			379			
			386			
			388.5			
			391			
			393.5			
			396			
			398.5			
			401			
			403.5			
			406			
			408.5			
			411			
			413.5			
			416			
			418.5			

5 patches, 37 BLMs

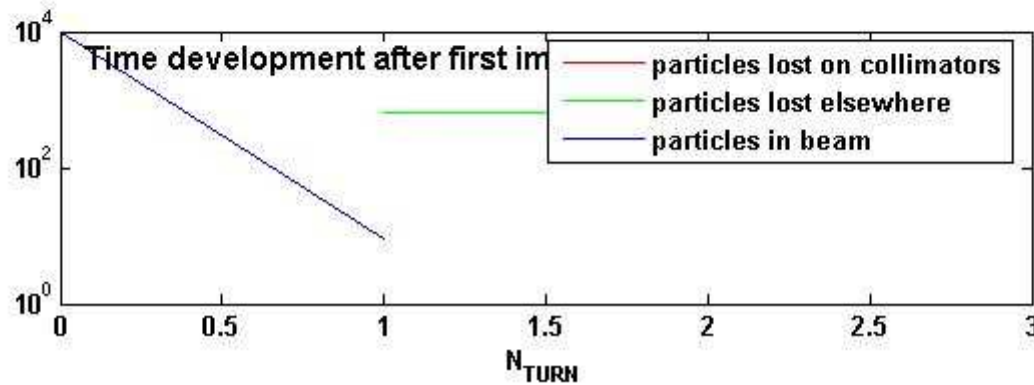
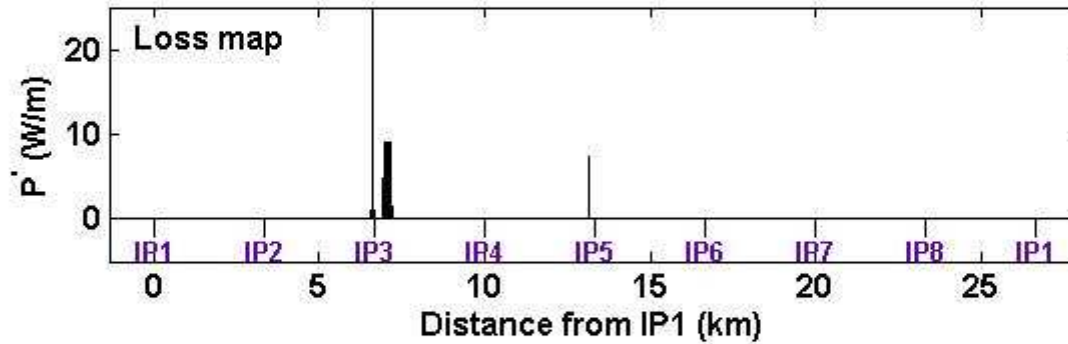
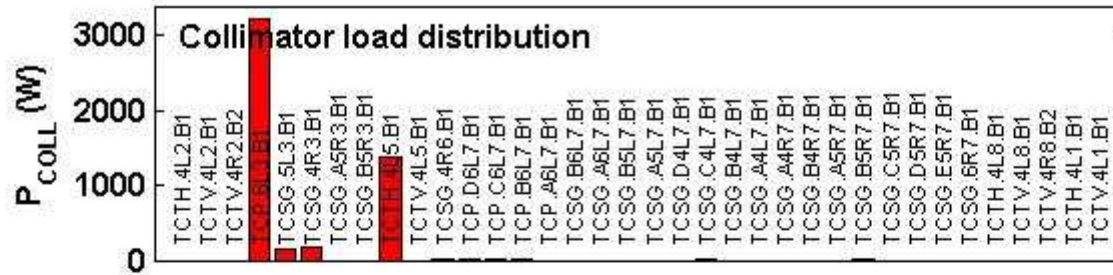
Beam 2

BEAM	IP	SLOT	s(m) from IP7	Transv pos	MAD-X name	cold mass type						
2	7	BJBAP.B8L7		Inside	MQ.8L7.B2	MQ.8L7						
			307.5									
			310									
			312.5									
2	7	BJBAP.A9L7	315	Inside	MB.A9L7.B2	MBB.9L7						
			317.5									
			320									
			322.5									
			325									
			327.5									
			330									
			332.5									
			335									
			337.5									
2	7	BJBAP.B9L7	340	Inside	MQ.9L7.B2	MQ.9L7						
			348									
			351.875									
			355.75									
2	7	BJBAP.A10L7	359.625	Inside	MQ.10L7.B2	MQ.10L7						
			363.5									
			367.375									
			371.25									
2	7	BJBAP.A11L7	375.125	Inside	MB.B11L7.B2	MBA.11L7						
			379									
			387.5									
			390									
			392.5									
			395									
			397.5									
			400									
			402.5									
			405									
			407.5									
			410									
			412.5									
			415									
			417.5									
			2				7	BYPLM.A13L7		Inside	MQ.13L7.B2	MQ.13L7
									535			
537.5												
540												
2	7	BYPLM.A19L7	548	Inside	MQ.19L7.B2	MQ.19L7						
			853									
			855.5									
			858									
			860.5									

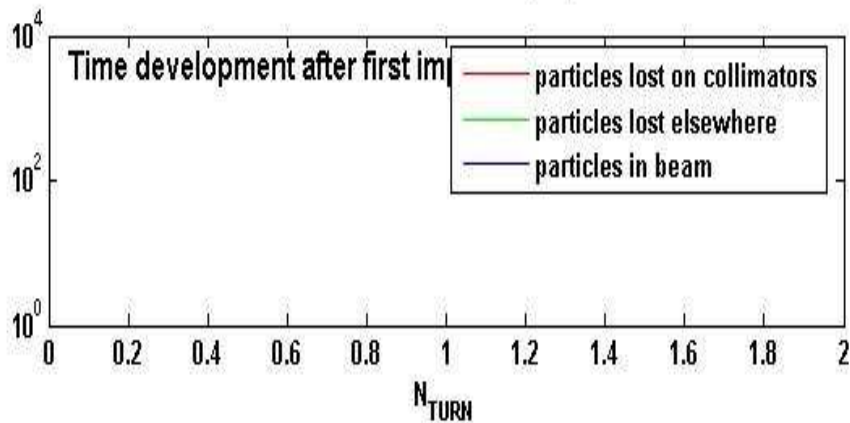
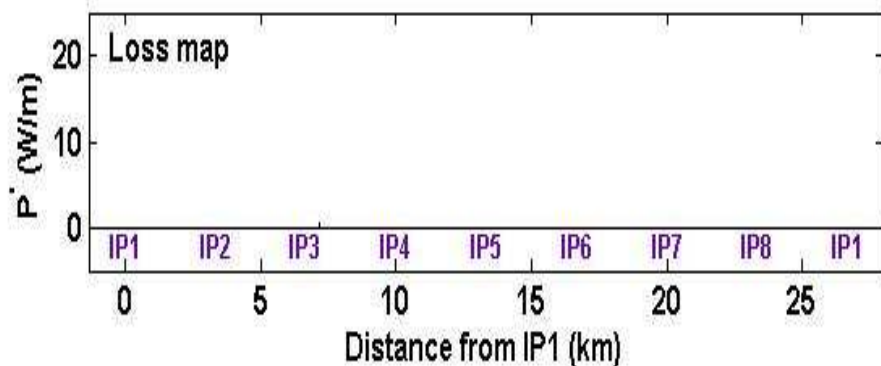
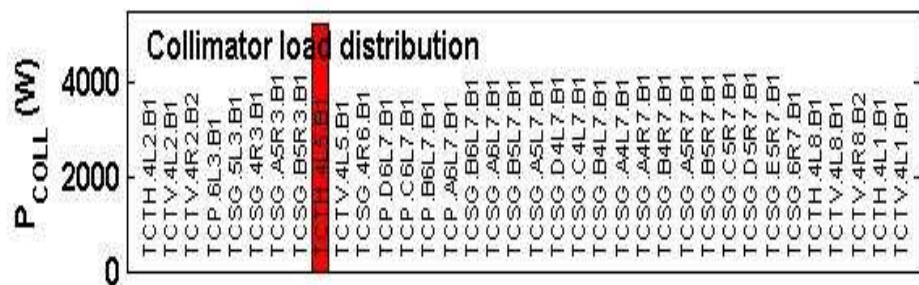
7 patches, 44 BLMs

IR3 (momentum cleaning):

aperture settings: TCPs@ 15σ , TCSs@ 18σ , TCTs@ 10σ



TCP open



dP/P=0 downstream of TCP

