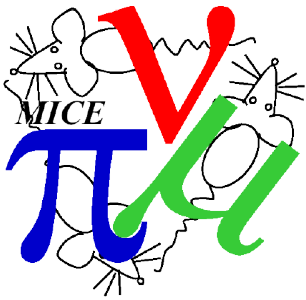
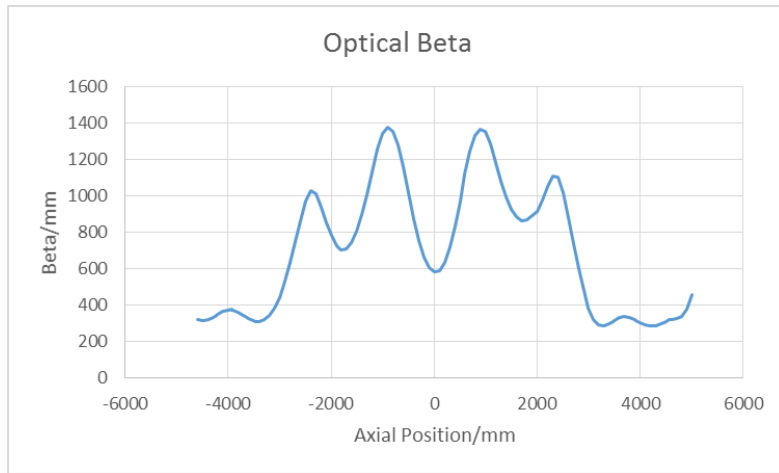


Demonstration of Ionisation Cooling alignment and tolerances

Alan Young
17th December 2015



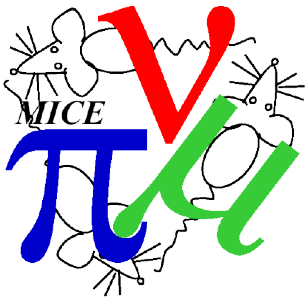
Beamline with no misalignments



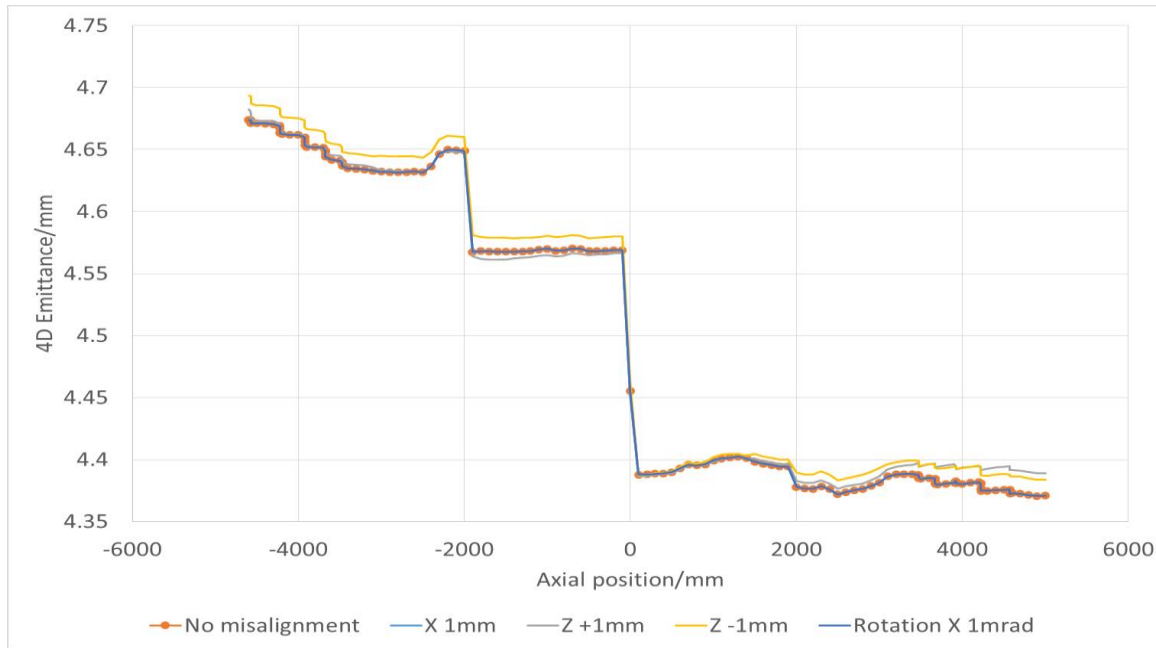
- Configuration: cd_step_frozen_53_1.dat
- 1000spills and 10 particles per spill
- Radial cut of 150mm applied

- Baseline parameters
- Emittance at beginning of cooling channel, ϵ_0 , 4.635mm
- Emittance at end of cooling channel, ϵ_1 , 4.388mm
- Energy at start of cooling channel, E_0 , 228.41MeV
- Energy at end of cooling channel, E_1 , 212.45MeV
- Optical Beta at primary absorber, β_A , 584.25mm
- Optical Beta at end of cooling channel, β_1 , 300.44mm

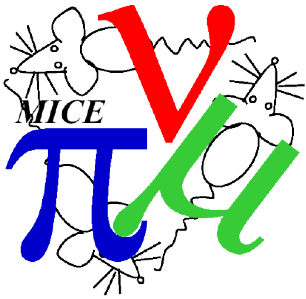




Upstream Spectrometer



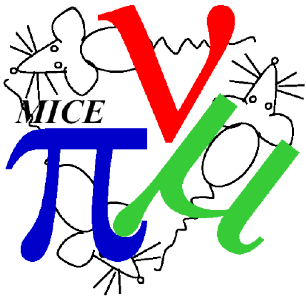
	ϵ_0/mm	ϵ_1/mm	E_0/MeV	E_1/MeV	β_A/mm	B_1/mm
No Mis	4.635	4.388	228.41	212.45	584.25	300.44
X 1mm	4.635	4.388	228.41	212.45	584.25	300.44
Z +1mm	4.638	4.396	228.41	212.44	583.93	298.97
Z -1mm	4.647	4.399	228.44	212.48	585.39	298.17
AX 1mrad	4.634	4.388	228.41	212.45	584.25	300.44



Upstream Secondary Absorber



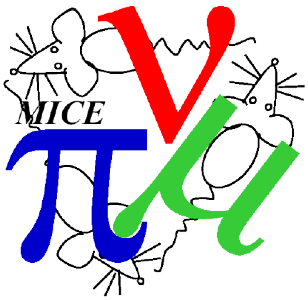
	ϵ_0/mm	ϵ_1/mm	E_0/MeV	E_1/MeV	β_A/mm	B_1/mm
No Mis	4.635	4.388	228.41	212.45	584.25	300.44
X 1mm	4.635	4.388	228.41	212.45	584.25	300.44
Z +1mm	4.635	4.388	228.41	212.45	584.25	300.44
Z -1mm	4.635	4.388	228.41	212.45	584.25	300.44
AX 1mrad	4.635	4.388	228.41	212.45	584.25	300.44
X 10mm	4.635	4.388	228.41	212.45	584.25	300.44
Z +10mm	4.636	4.387	228.40	212.45	584.37	300.43
Z -10mm	4.636	4.388	228.41	212.45	583.63	300.52
AX 10mrad	4.635	4.388	228.41	212.45	584.44	300.44



Upstream Cavity



	ϵ_0/mm	ϵ_1/mm	E_0/MeV	E_1/MeV	β_A/mm	B_1/mm
No Mis	4.635	4.388	228.41	212.45	584.25	300.44
X 1mm	4.636	4.388	228.41	212.45	584.24	300.43
Z +1mm	4.636	4.387	228.40	212.45	584.25	300.56
Z -1mm	4.634	4.388	228.40	212.45	584.07	300.41
AX 1mrad	4.636	4.389	228.40	212.45	584.07	300.49
X 10mm						
Z +10mm	4.638	4.388	228.41	212.45	584.14	300.63
Z -10mm	4.636	4.388	228.41	212.45	584.03	300.40
AX 10mrad	4.635	4.385	228.50	212.45	584.16	300.47



Upstream Cavity

