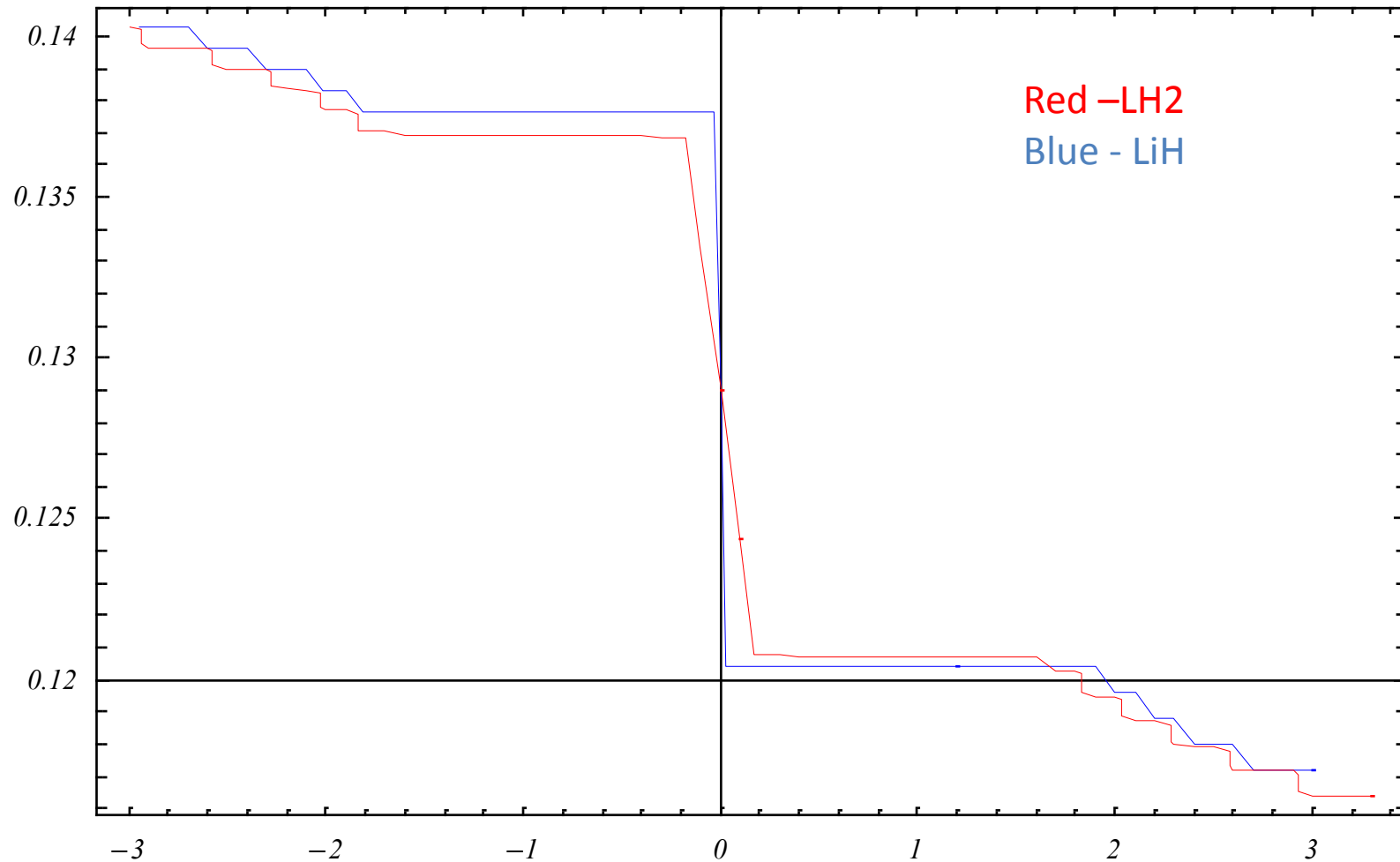


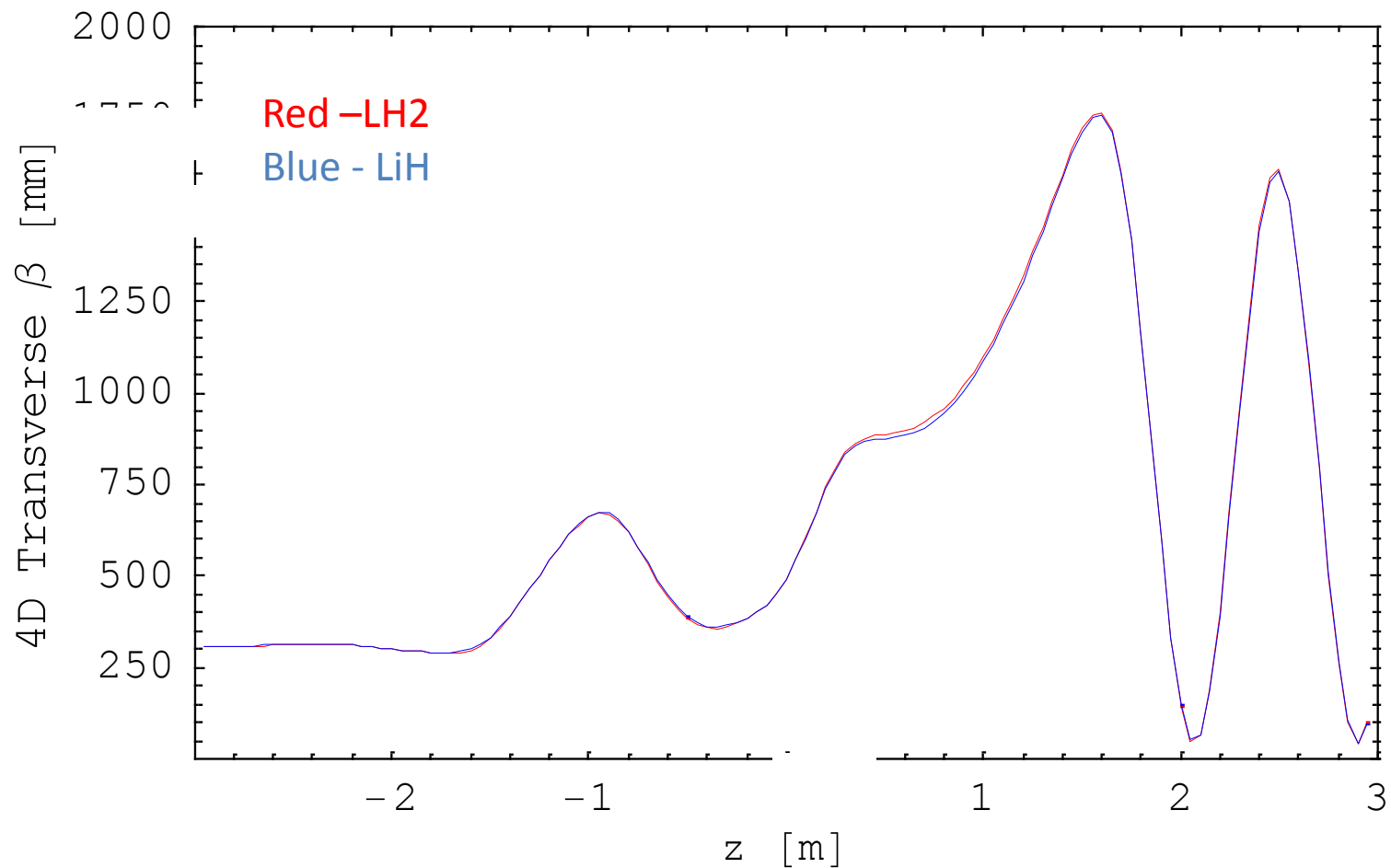
On LH2 Settings

J.P./28/06/2017

Momentum profile (GeV/c vs m)

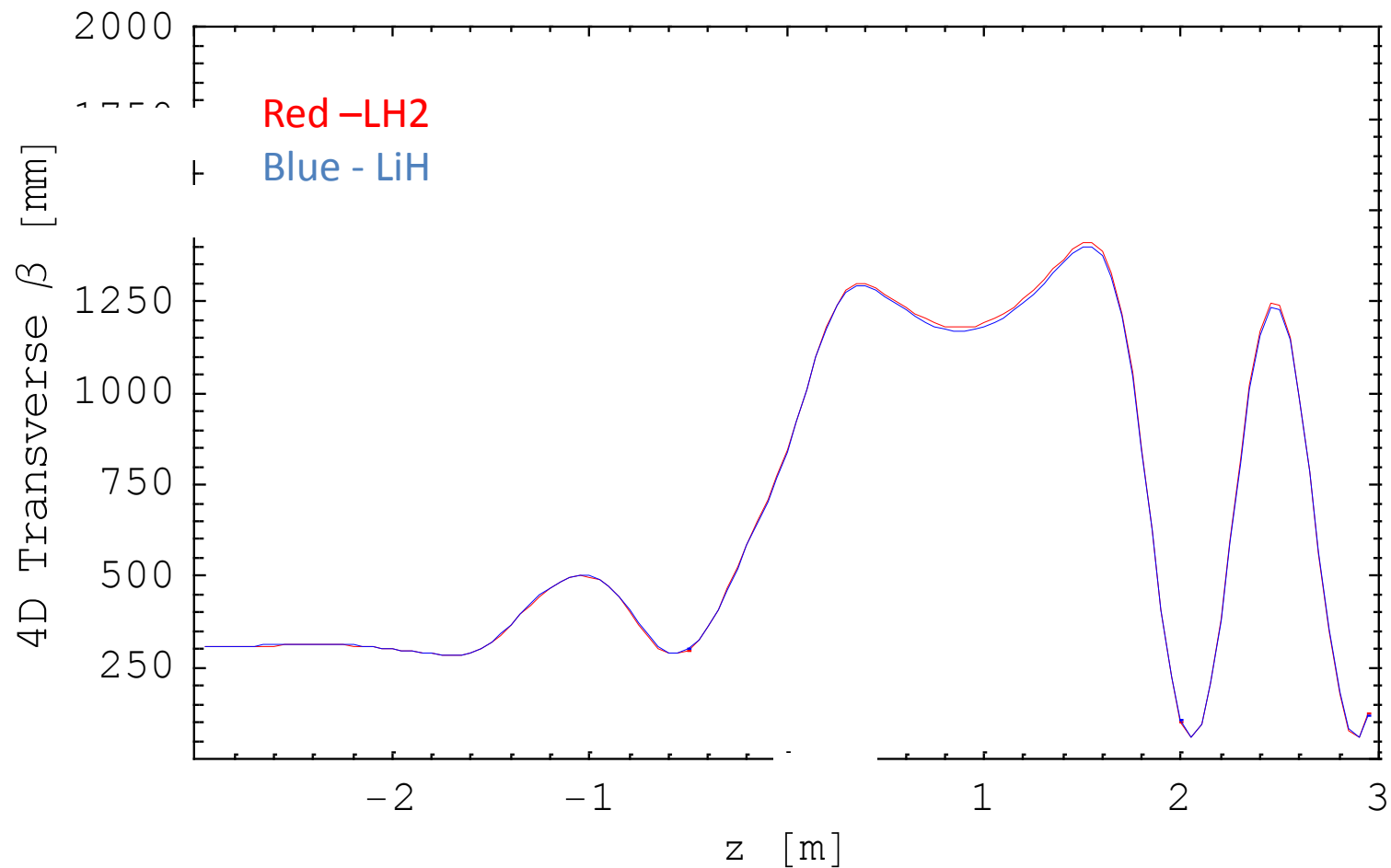


Optics assuming the same setting (strong focusing, flip, 140 MeV/c)



No observable difference, so we can use LiH setting

Optics assuming the same setting (75cm, flip, 140 MeV/c)



No observable difference, so we can use LiH setting

Proposal for the settings for cooling reduction

- Probably flip as it performs better (subject to confirmation)
- Two settings with 140 MeV/c (45cm and 75 cm) for partial beta scan
- One with 200 MeV/c for another momentum point
- ...and one with M2d ON!



Optimization result - Continued



- Variable values corresponding to the previous results:

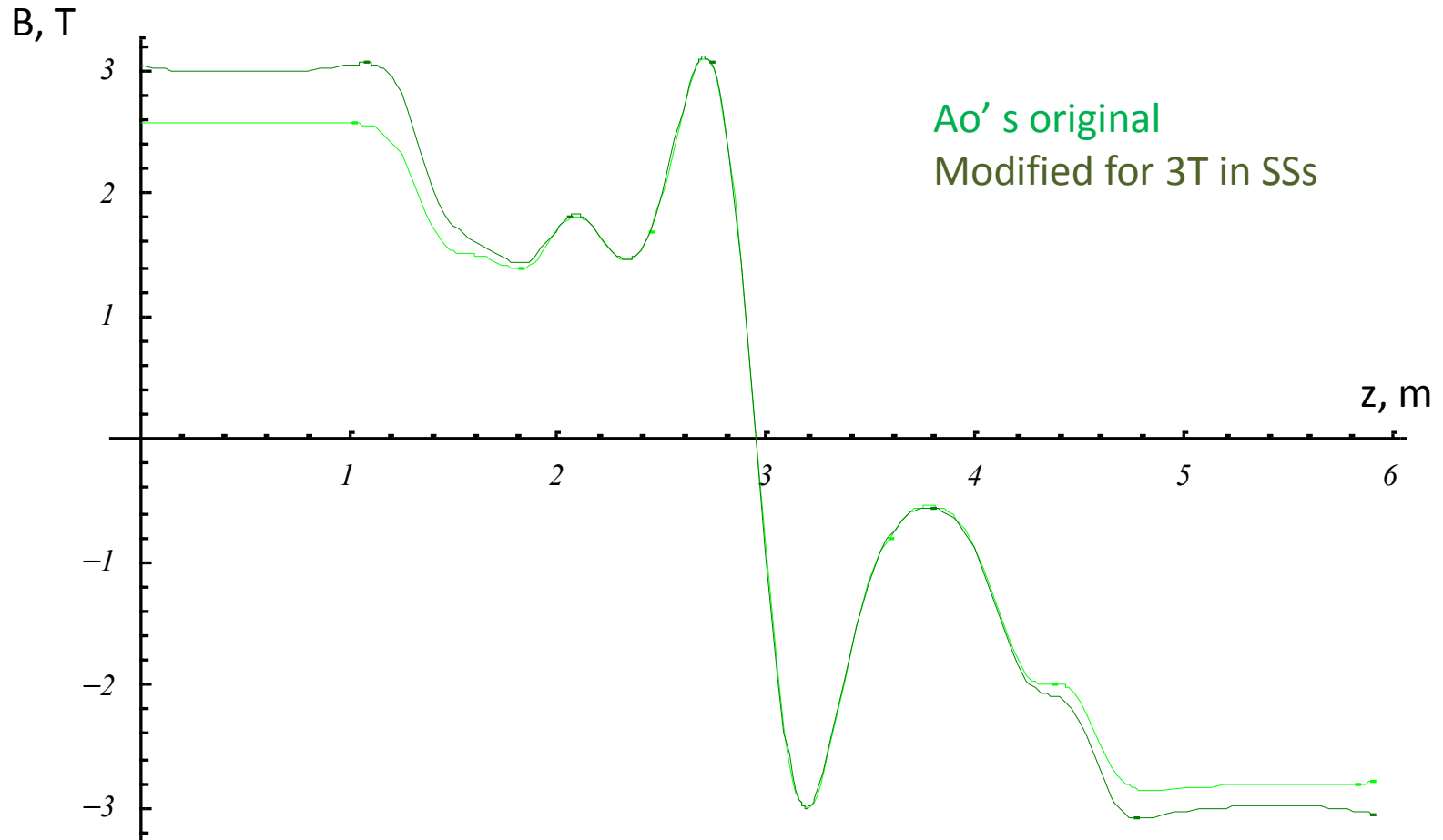
variable	flip, 140	flip, 200	flip, 240	sole, 140	sole, 200	sole, 240
x_1	0.64	0.68	0.80	0.75	0.72	0.89
x_2	116.40	150.40	251.62	241.14	219.81	222.69
x_3	133.01	253.18	150.98	225.42	162.66	146.06
x_4	181.21	222.94	126.80	53.52	55.95	64.09
x_5	-205.95	-242.47	-244.00	147.05	205.66	161.48
x_6	-0.71	-0.5	-0.70	0.51	0.51	0.70
$\Delta\epsilon/\epsilon_i$	-7.7%	-4.0%	-2.2%	-2.2%	-2.8%	-2.3%
T	93%	93%	90%	91%	92%	90%

	Current (A)
E2U	$253.23 \times x_1$
CU	$277.98 \times x_1$
E1U	$246.2 \times x_1$
M2U	x_2
M1U	x_3
FCU	x_4
FCD	x_4 (solenoid); $-x_4$ (flip)
M1D	0
M2D	x_5
E1D	$246.2 \times x_6$
CD	$277.98 \times x_6$
E2D	$253.23 \times x_6$

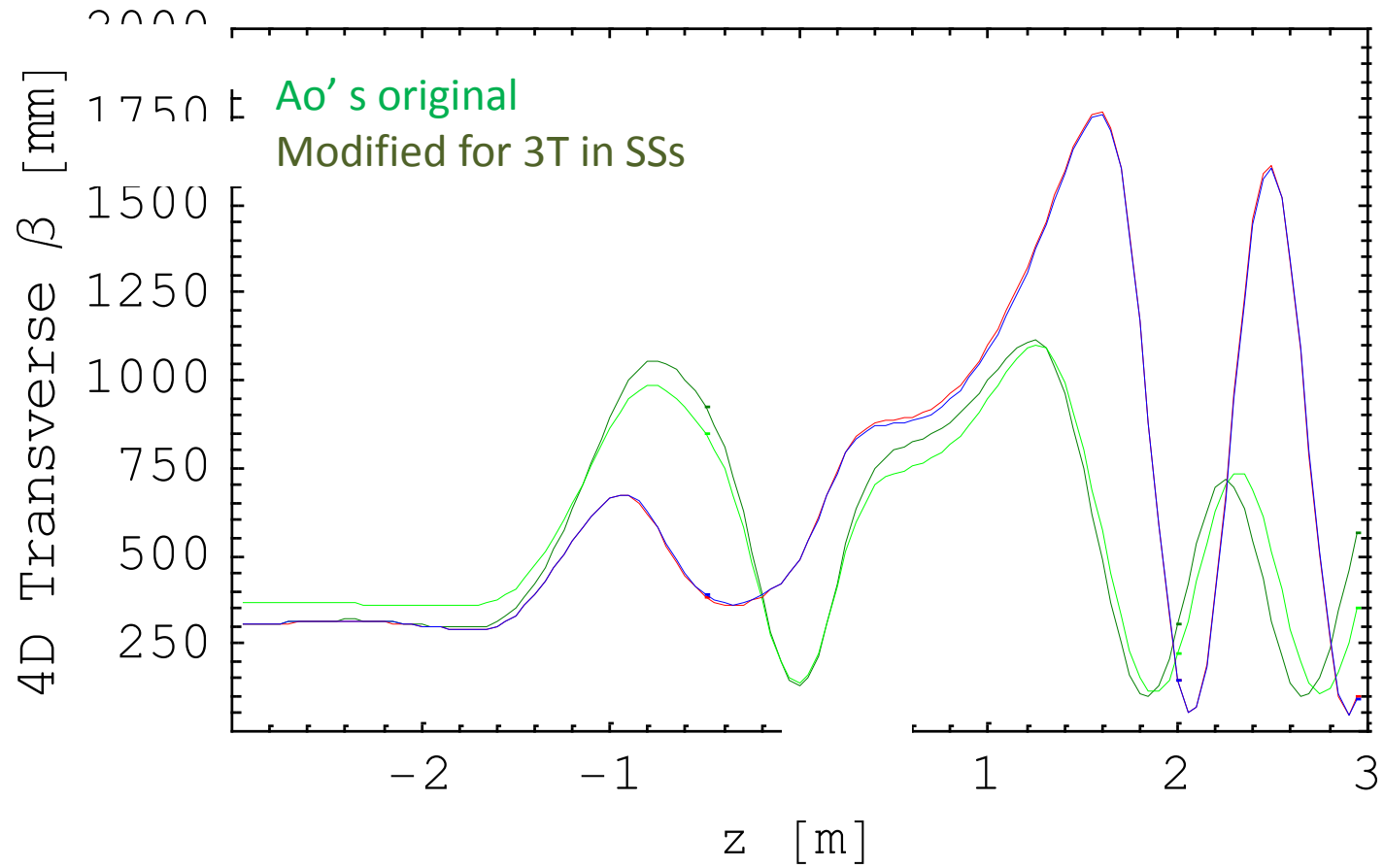
- In each run mode, we are able to deliver an ensemble of particles that can be cooled in the MICE Step IV lattice, with at least 90% transmission to the TOF2 without M1D. In most of them, the normalized transverse emit. reduction is more than 3%;

I take Ao's 140 MeV/c, flip

Bz on axis (T vs m)



Optics with and without M2D



Summary

- We should be able to use LiH setting without M2D for LH2 (no observable difference in optics).
- The M2D on setting promises better performance
 - Ao's setting seems v. Good
 - We should be able to have 3T in SSs with very similar performance
 - It seems there is some freedom for optimisation left. We should study this!