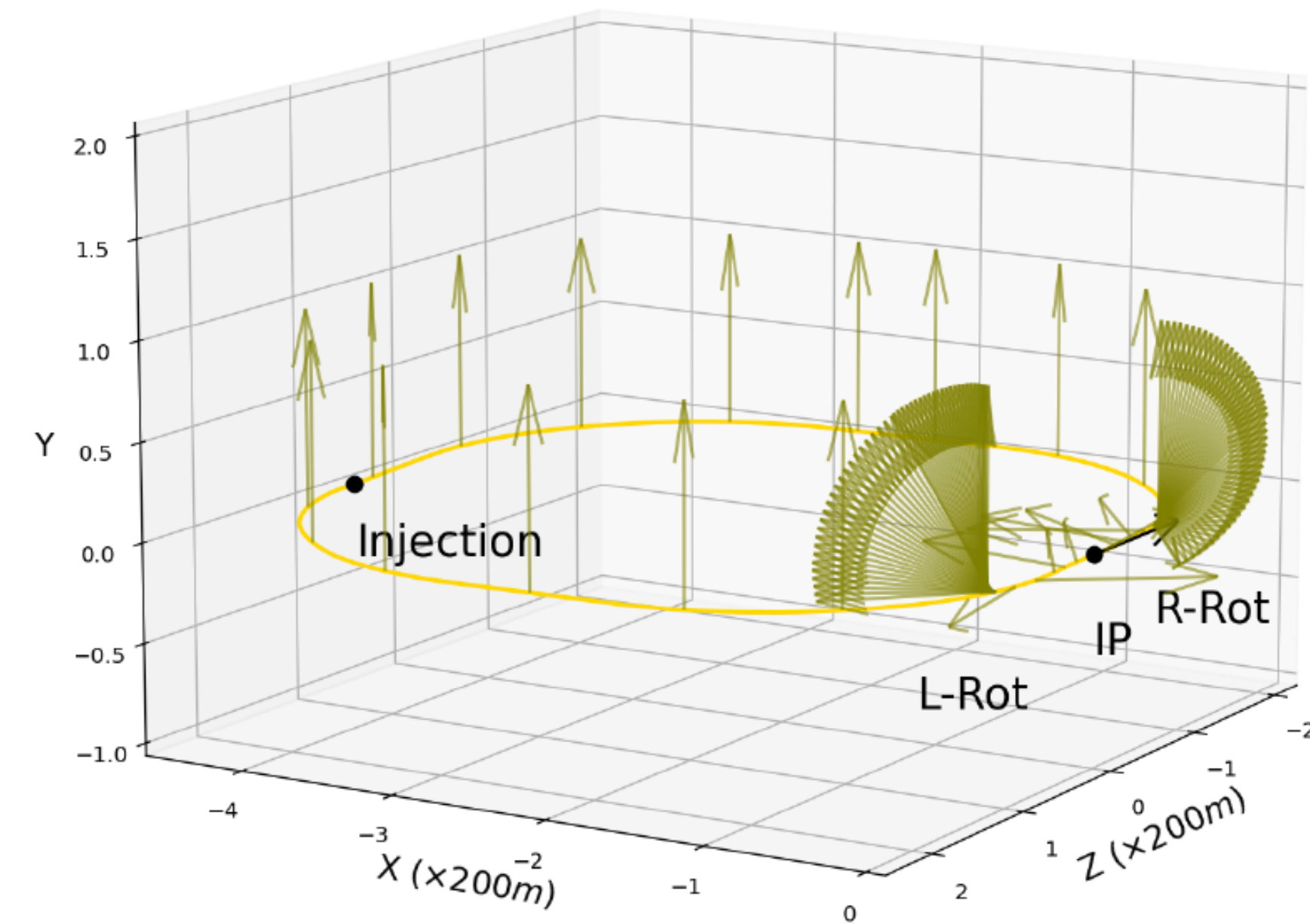
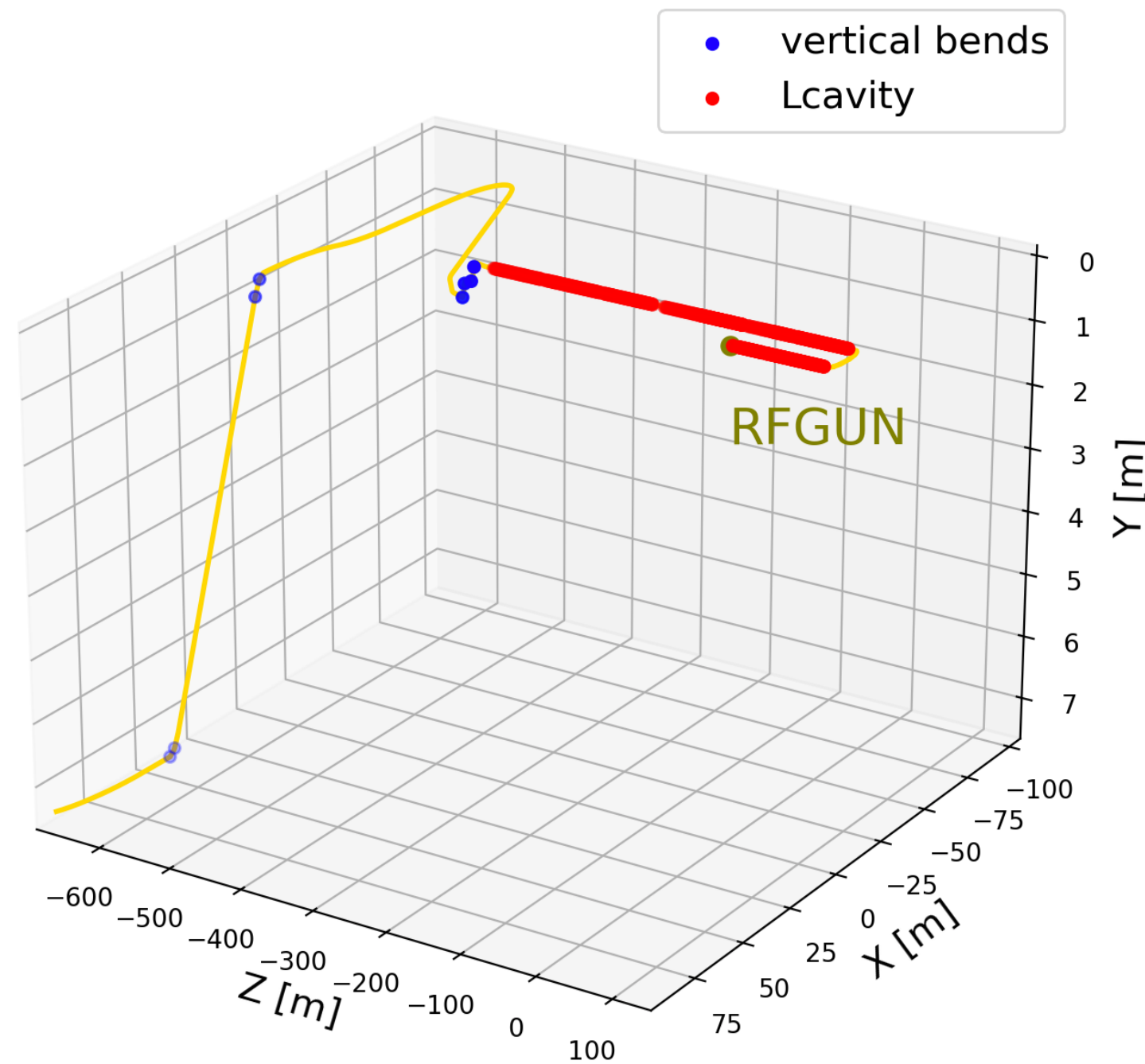


Chiral Belle Meeting Update: Studies of Thermionic Gun Source Region and the HER

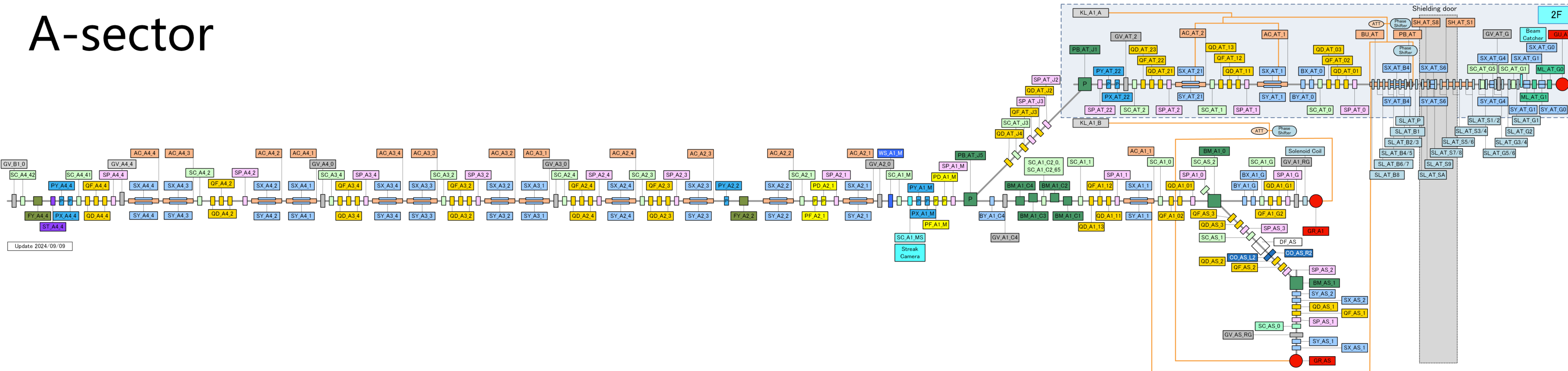
KEK Linac



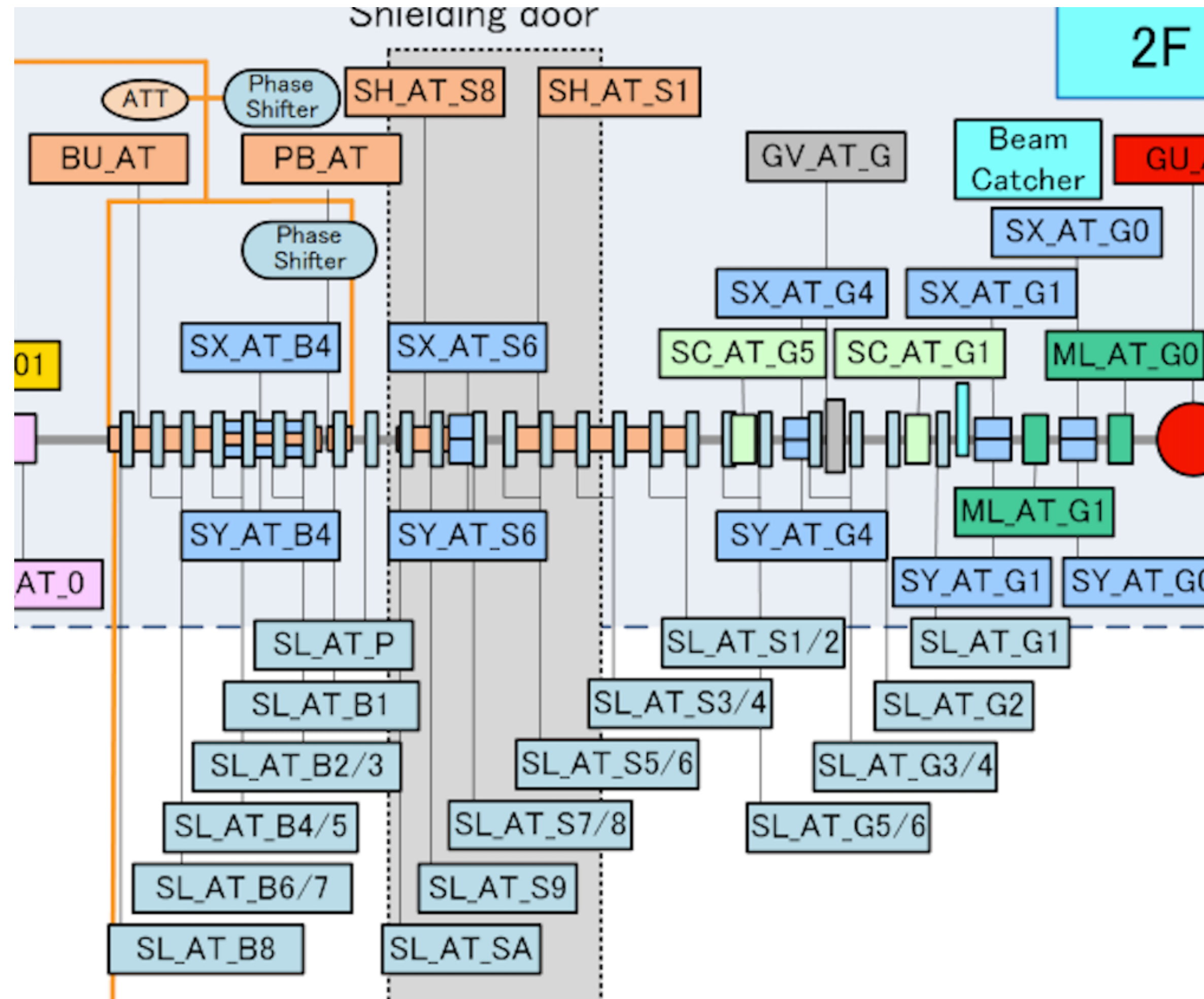
Yuhao Peng
2025.09.28

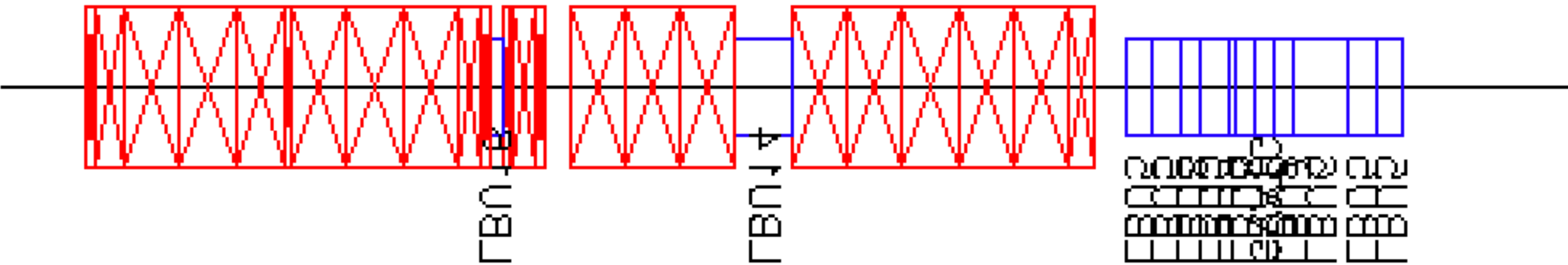
KEK Linac A-sector

A-sector

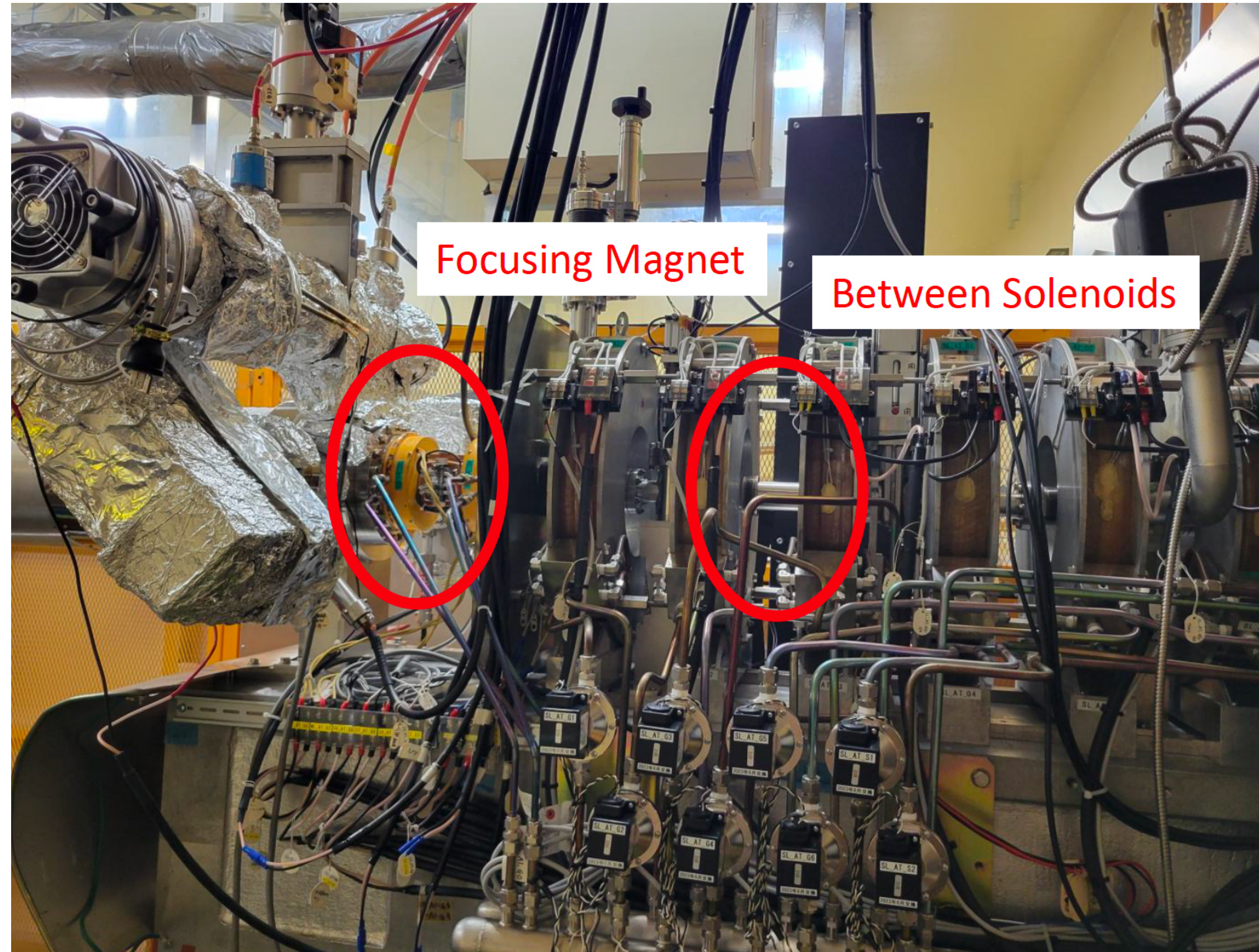


Source region: linac-guat.sad



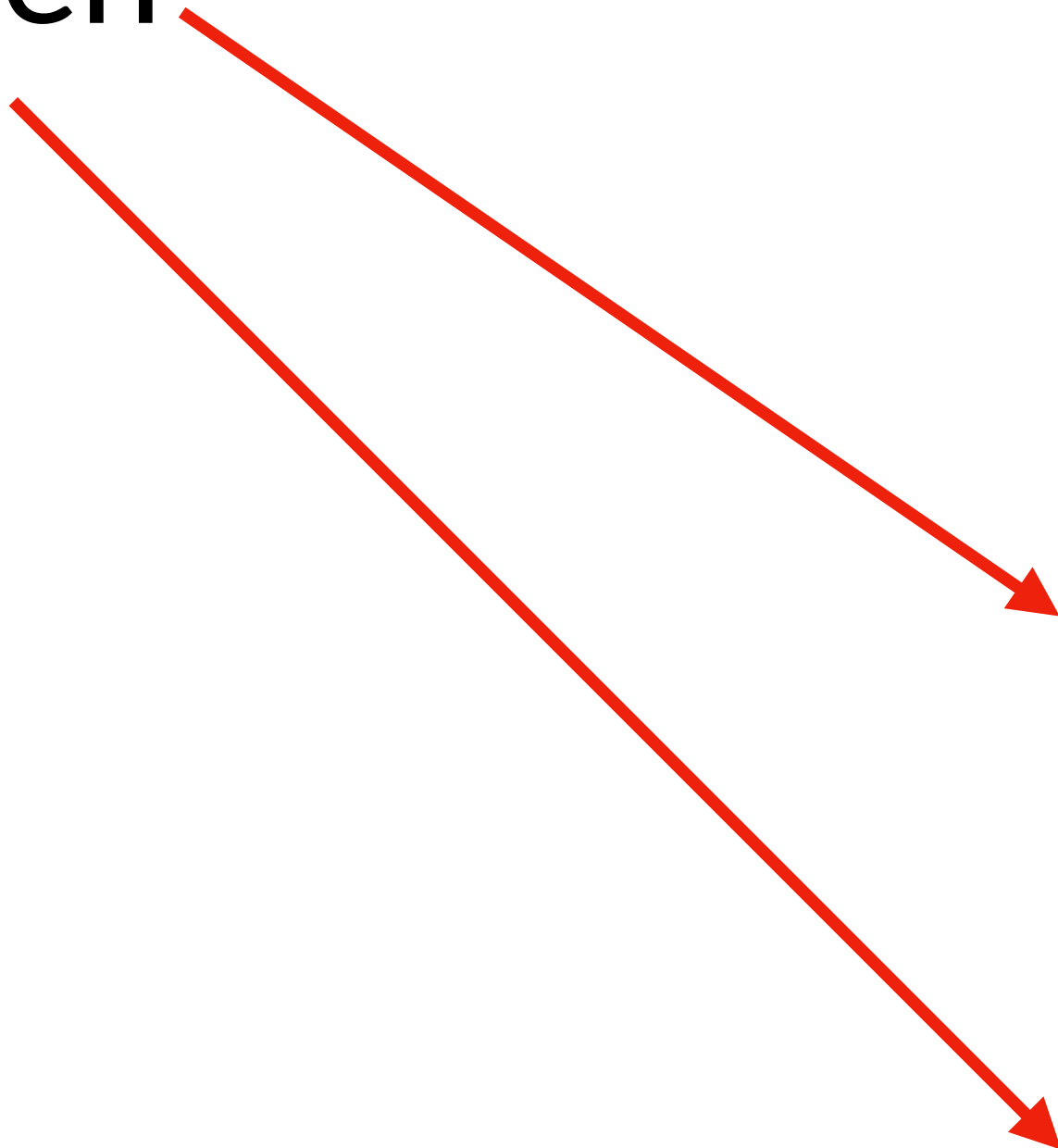


The merger gap



The merger gap

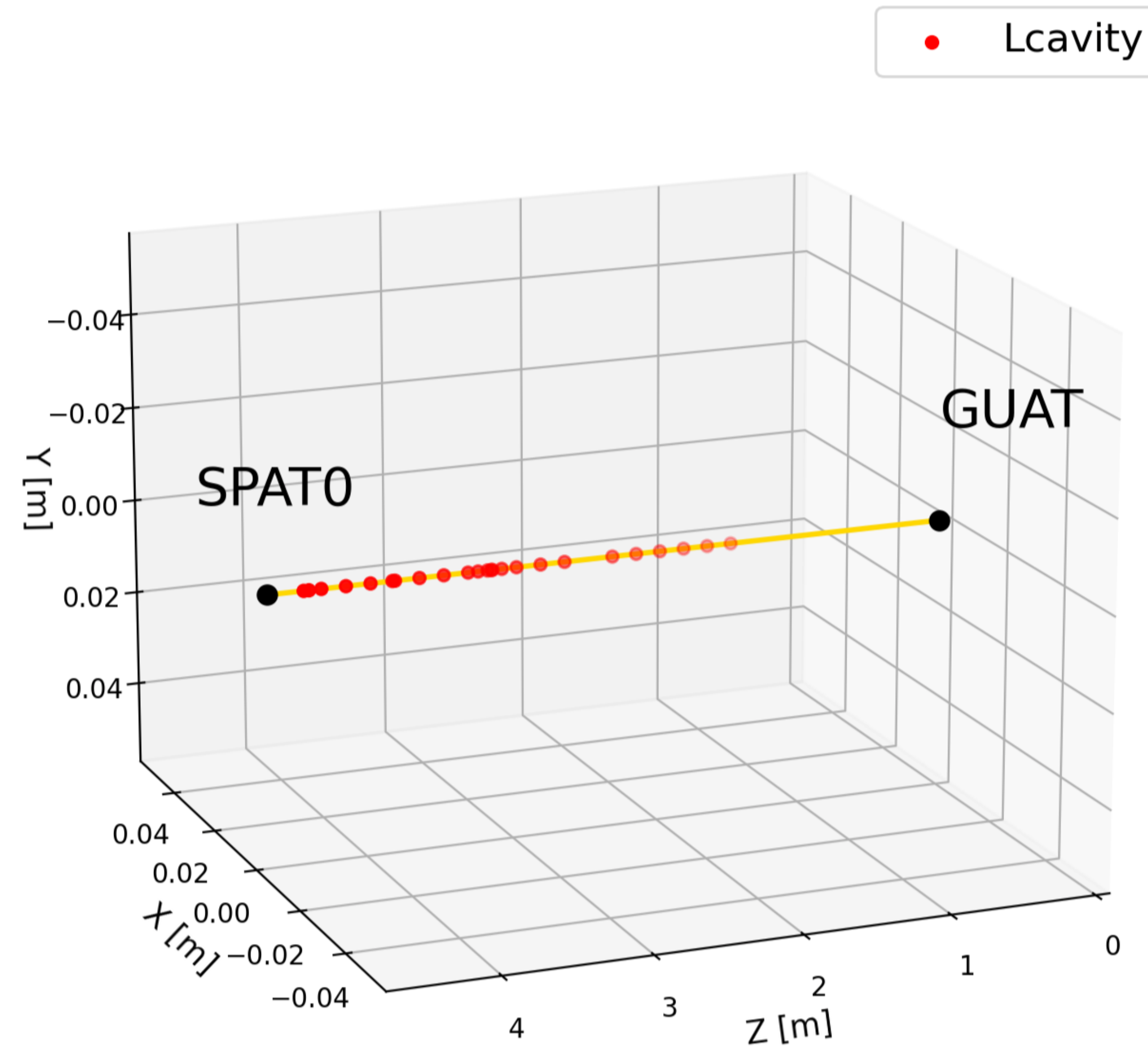
Gap
between



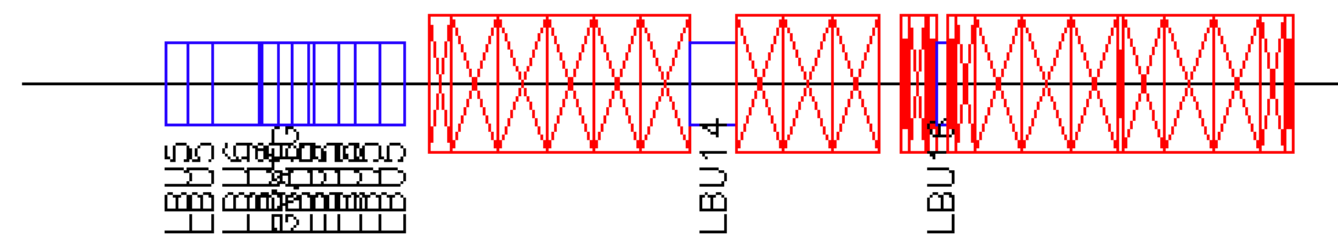
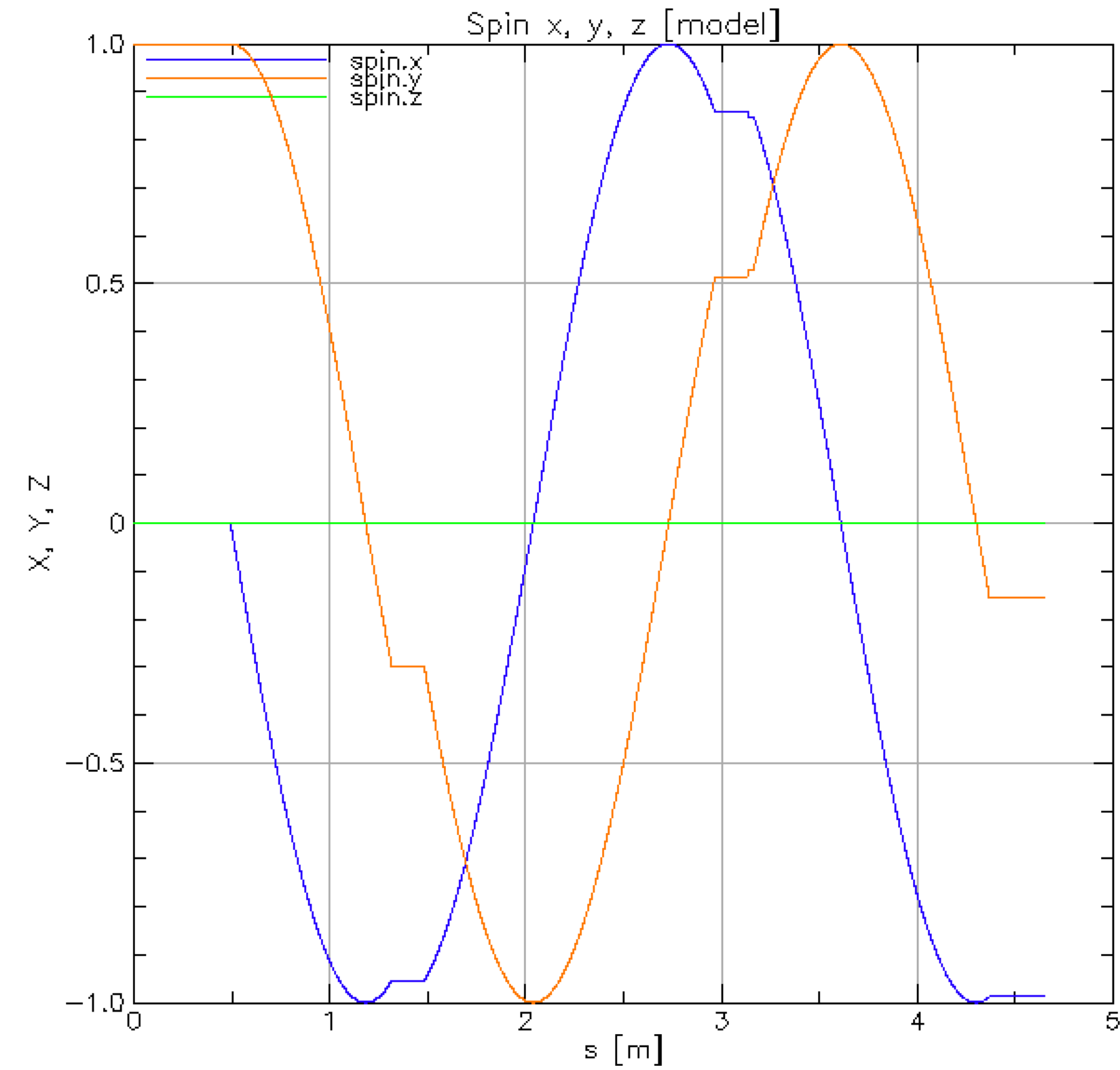
				s(m)	l(m)
12	12	LBU4	Drift	0.492	0.110
13	13	SLATG1	Marker	0.492	0.000
14	14	LBU5	Solenoid	0.575	0.083
15	15	SCATG1	Marker	0.575	0.000
16	16	LBU5	Solenoid	0.657	0.083
17	17	SLATG2	Marker	0.657	0.000
18	18	LBU6	Solenoid	0.82	0.163
19	19	CMATG2	Marker	0.82	0.000
20	20	LBU7	Solenoid	0.822	0.003
21	21	SLATG3	Marker	0.822	0.000
22	22	LBU8	Solenoid	0.88	0.058
23	23	GVATG	Solenoid	0.93	0.050
24	24	LBU8	Solenoid	0.987	0.058
25	25	SLATG4	Marker	0.987	0.000
26	26	LBU9	Solenoid	1.012	0.025

A-sector source layout

KEK Linac A-sector source

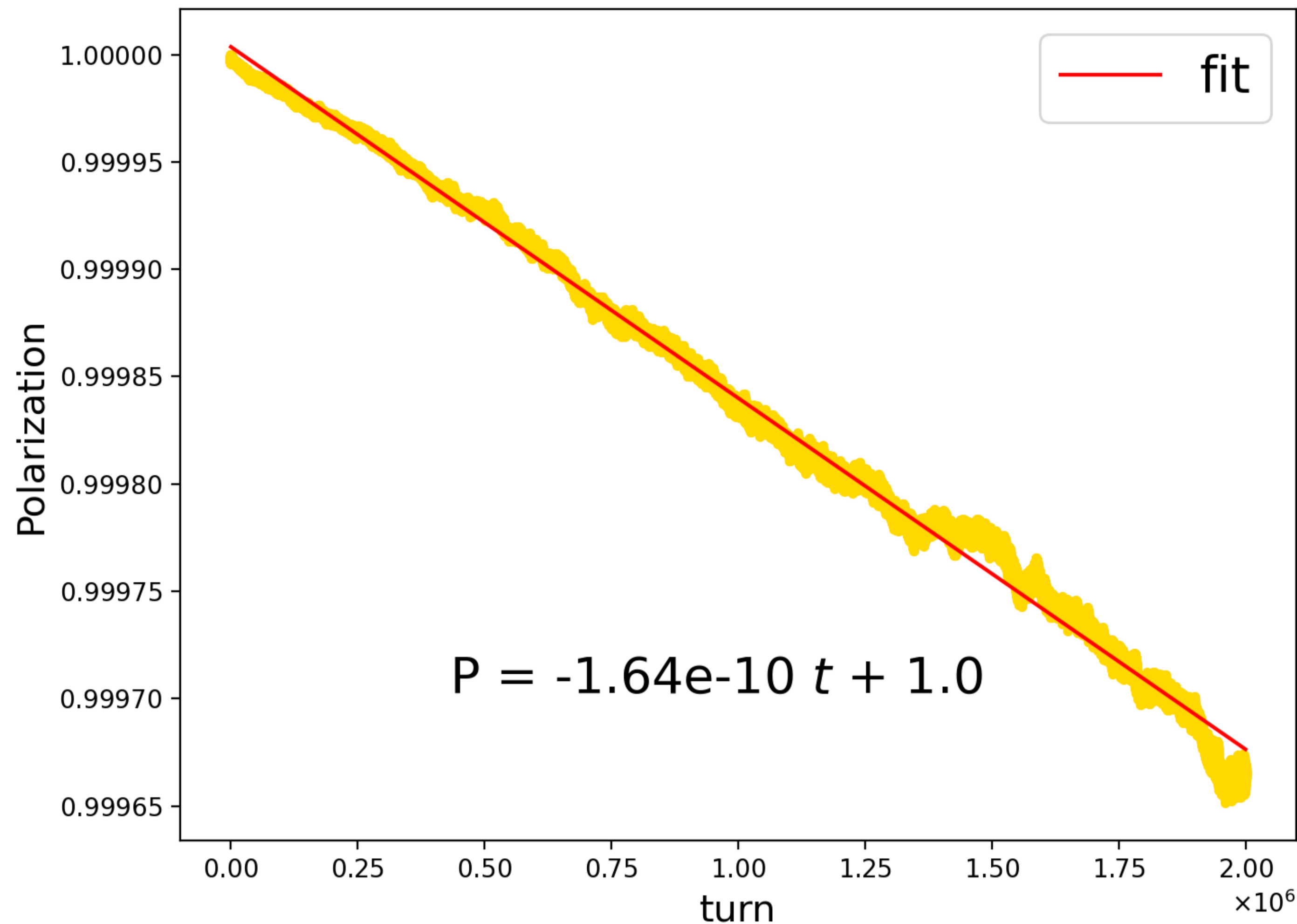


Bmad spin tracking in the A-section source



Study of Spin lifetime for the HER

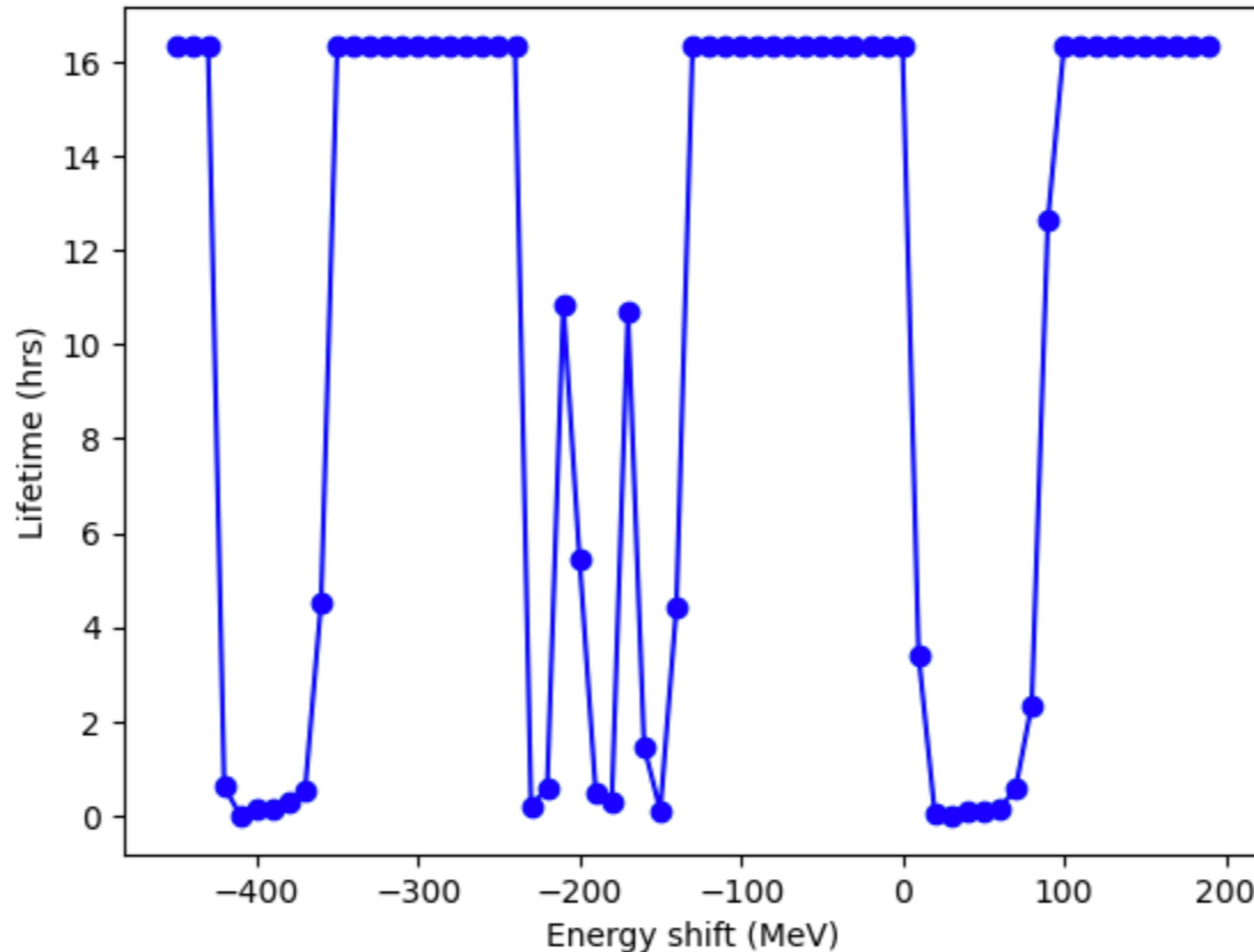
Polarization vs turn



- Tracking 100 particle for 2M turns in the SuperKEKB HER at the design energy: 7.00729GeV
- Lifetime~17hrs

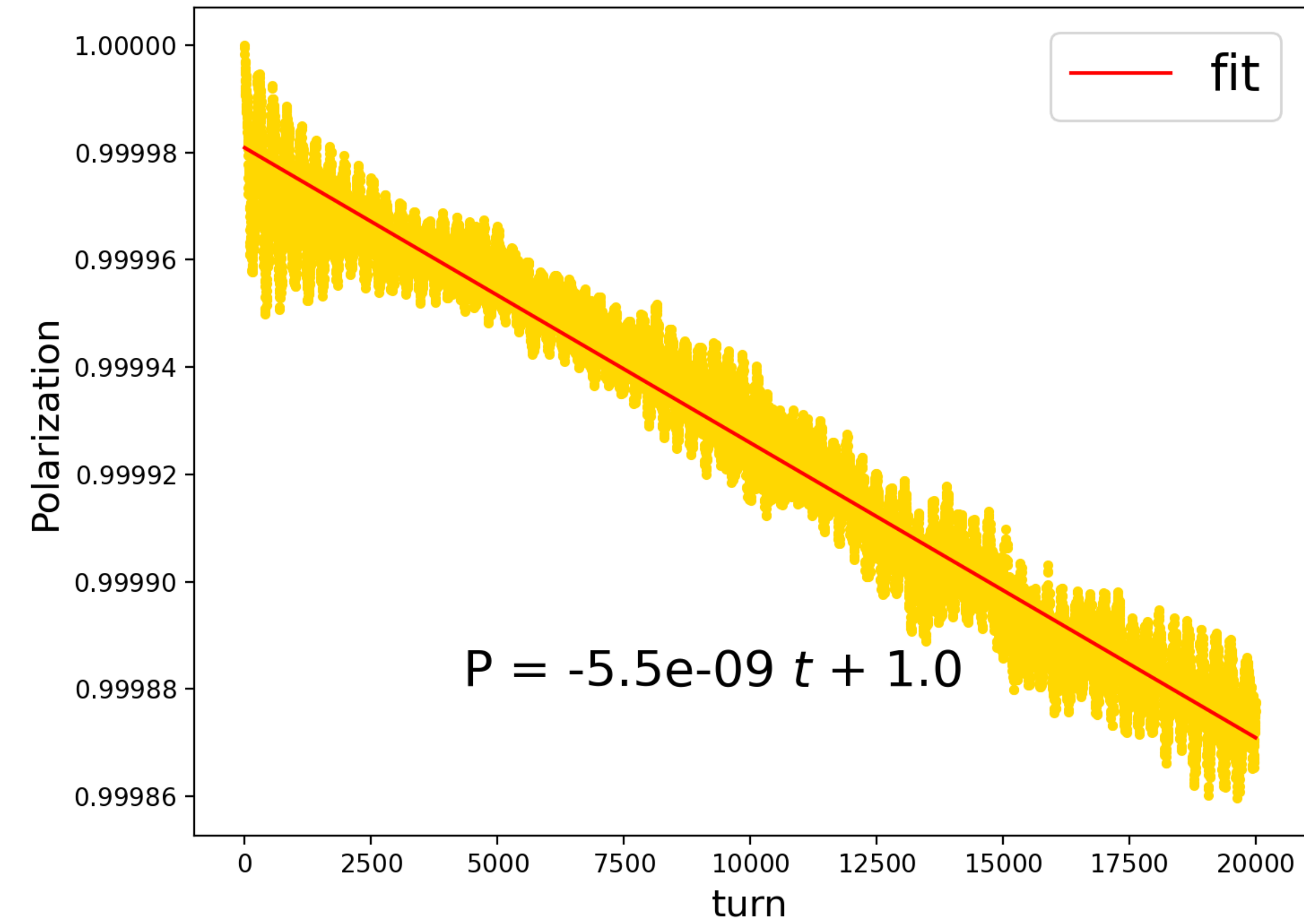
Study of Spin lifetime for the HER

Lifetime vs Energy Shift



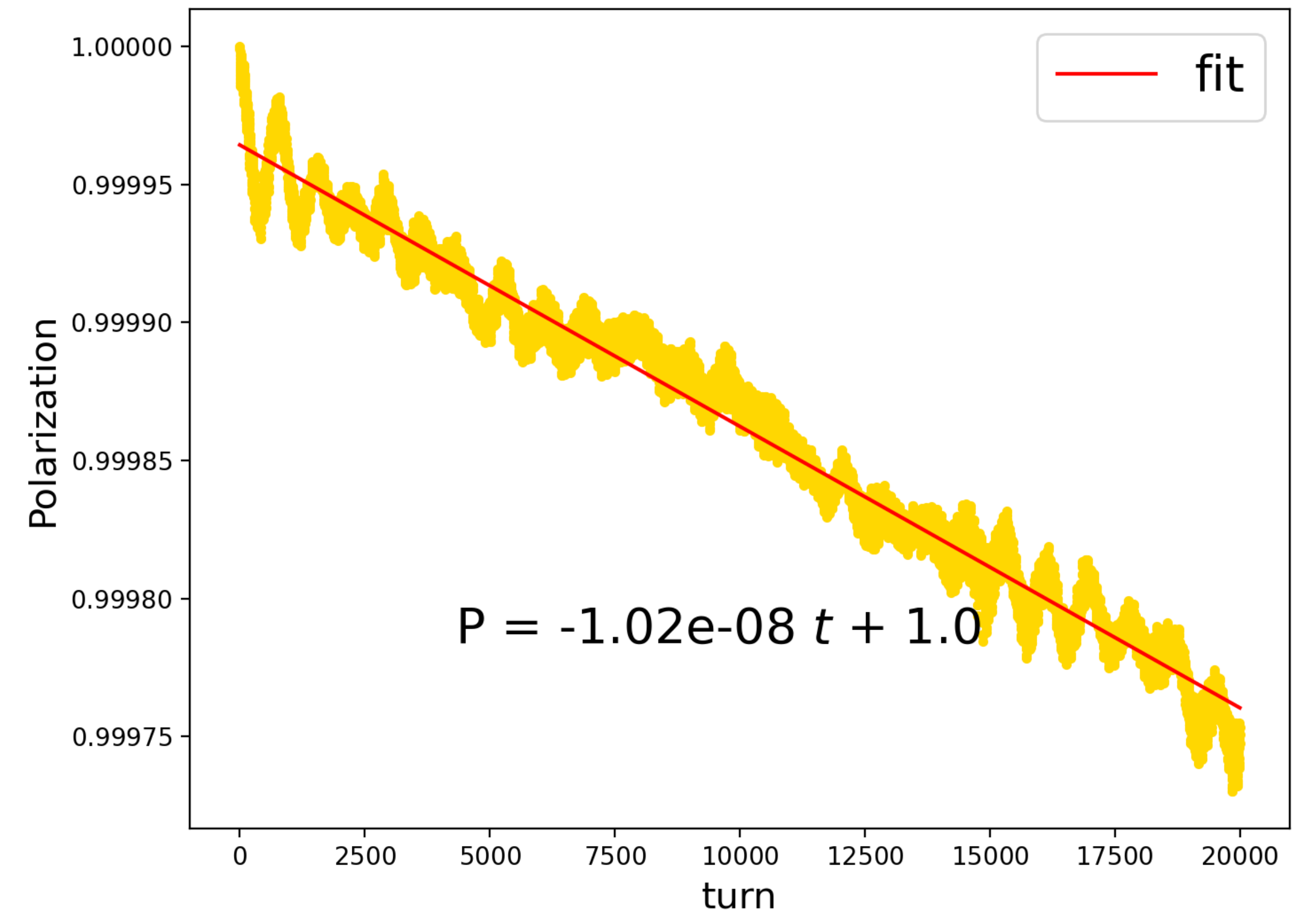
- Design Energy: 7.00729GeV
- The energy is shifted from the designed energy with 10 MeV as step
- Tracking 100 particle for 20000 turns in the SuperKEKB HER

Polarization vs turn



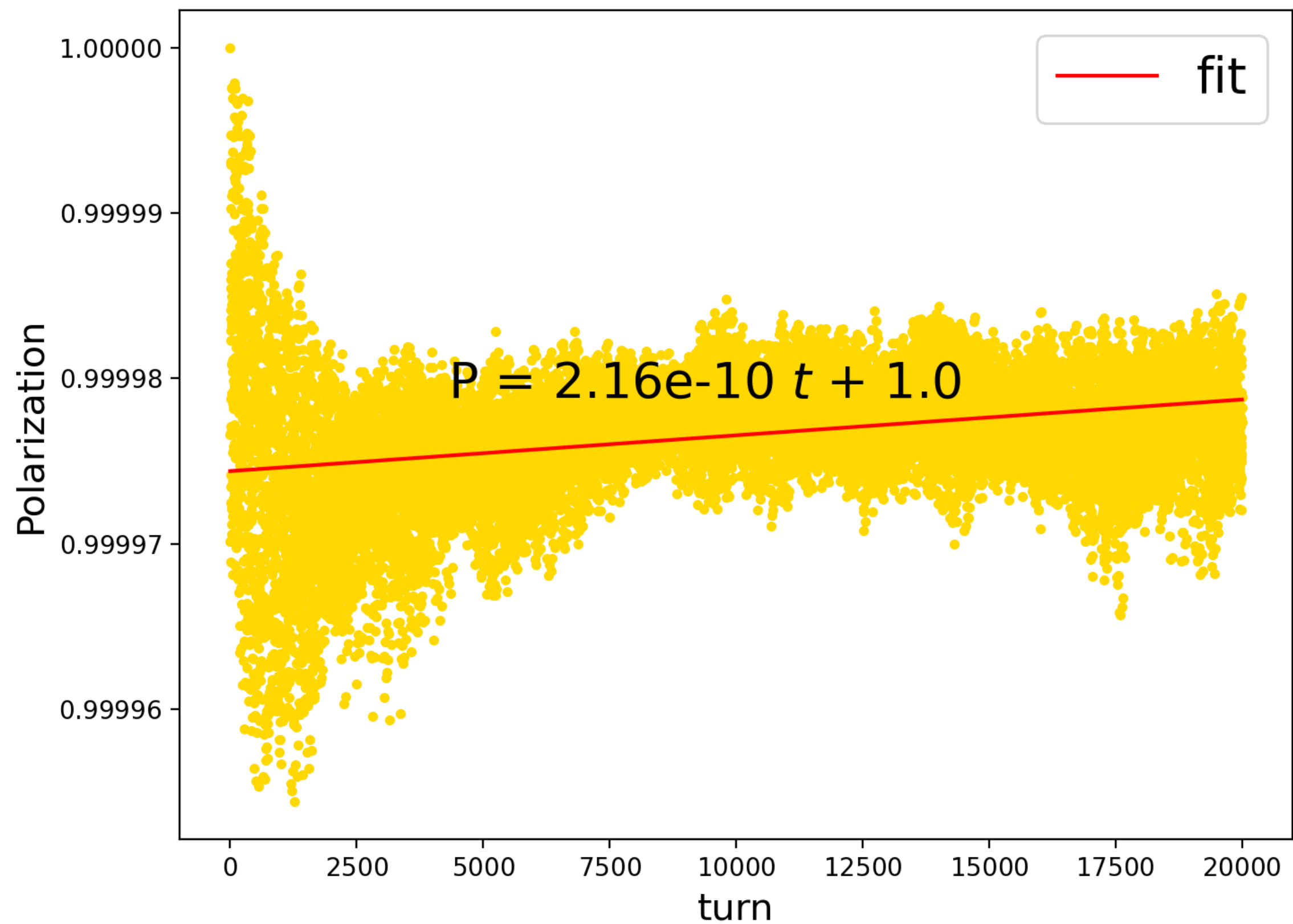
6.81729 GeV

Polarization vs turn



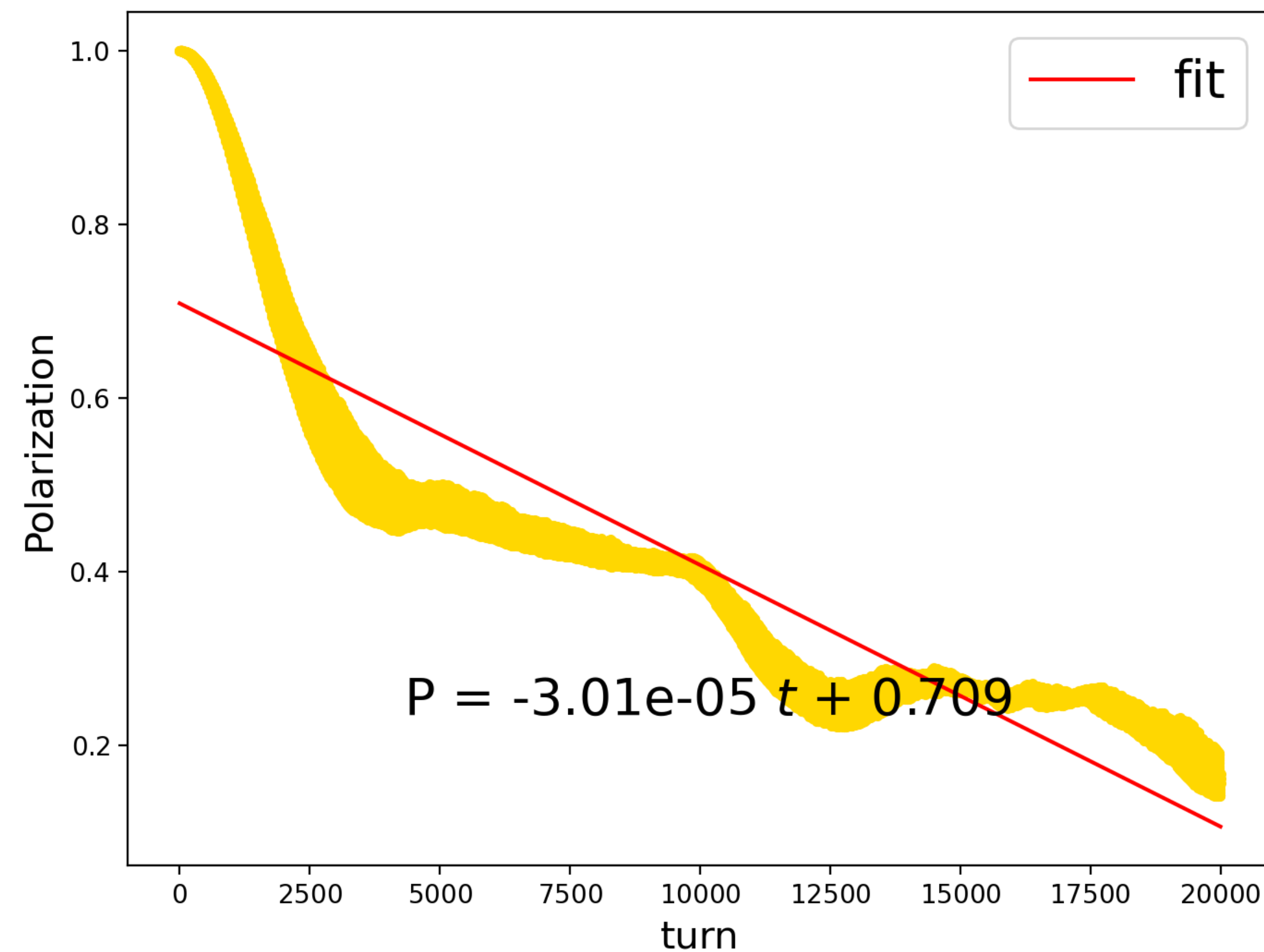
6.82729 GeV

Polarization vs turn



6.69729 GeV

Polarization vs turn



6.59729 GeV