

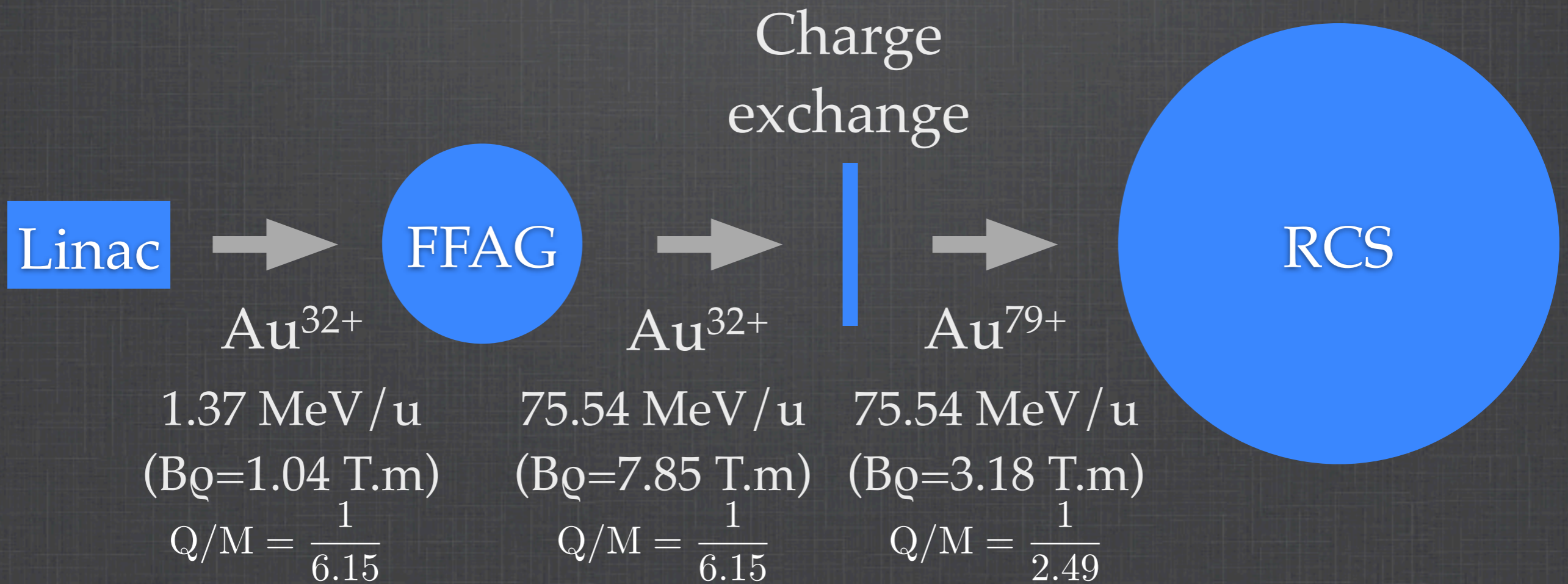


FFAG HI accelerator for j-parc

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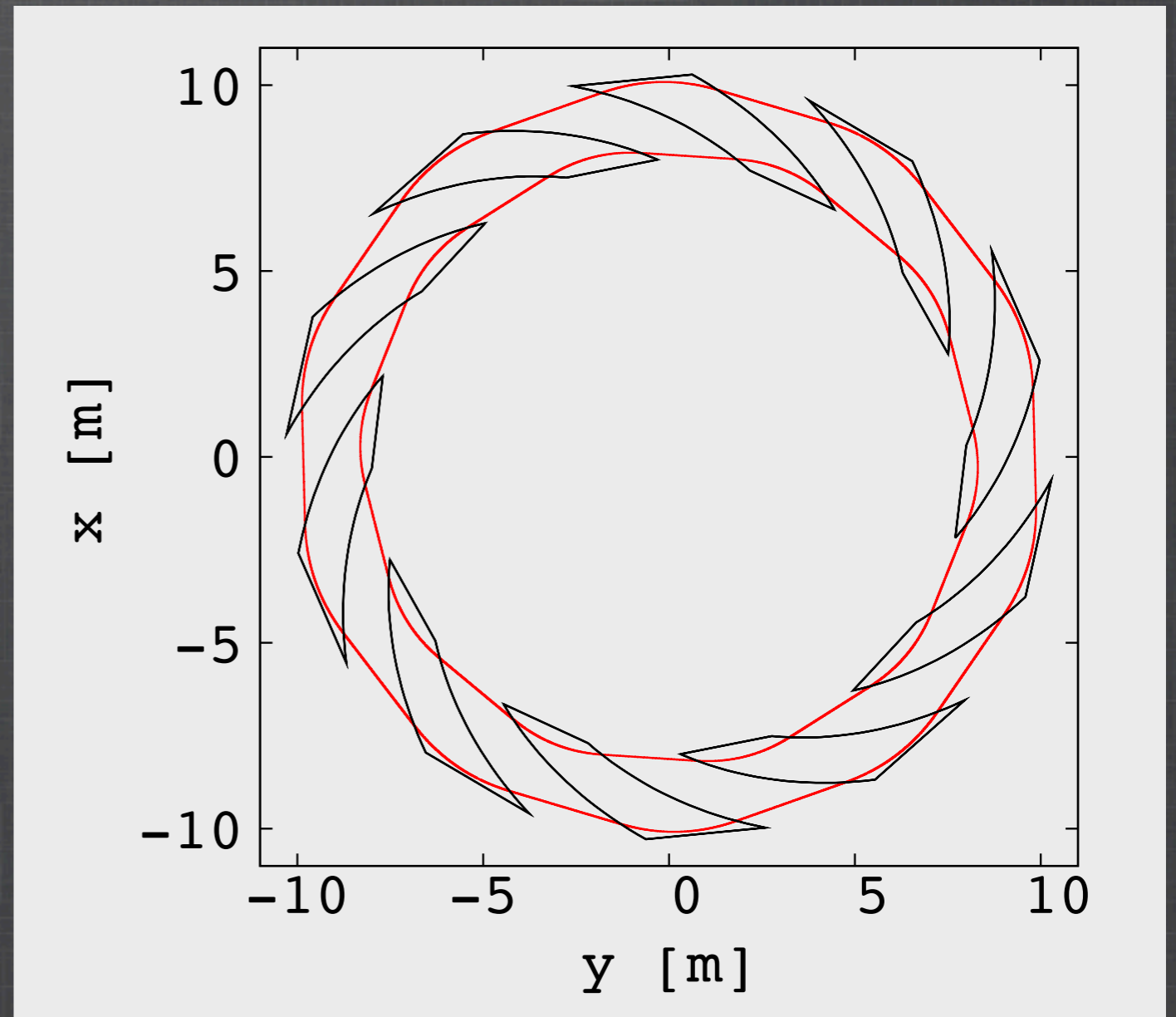
Aug. 1st 2013 KURRI-FFAG meeting

Scheme proposal



FFAG spiral

Type	spiral
Number of cells	10
Packing factor	0.5
k-value	9.5
Spiral angle [deg]	64.5
Inj. kinetic energy [MeV/u]	1.37
Ext. kinetic energy [MeV/u]	75.54
Max. energy radius [m]	9.9
Excursion [m]	1.7
Max. magnetic field [T]	1.6
Hor. cell tune [deg]	143.4
Vert. cell tune [deg]	28.1

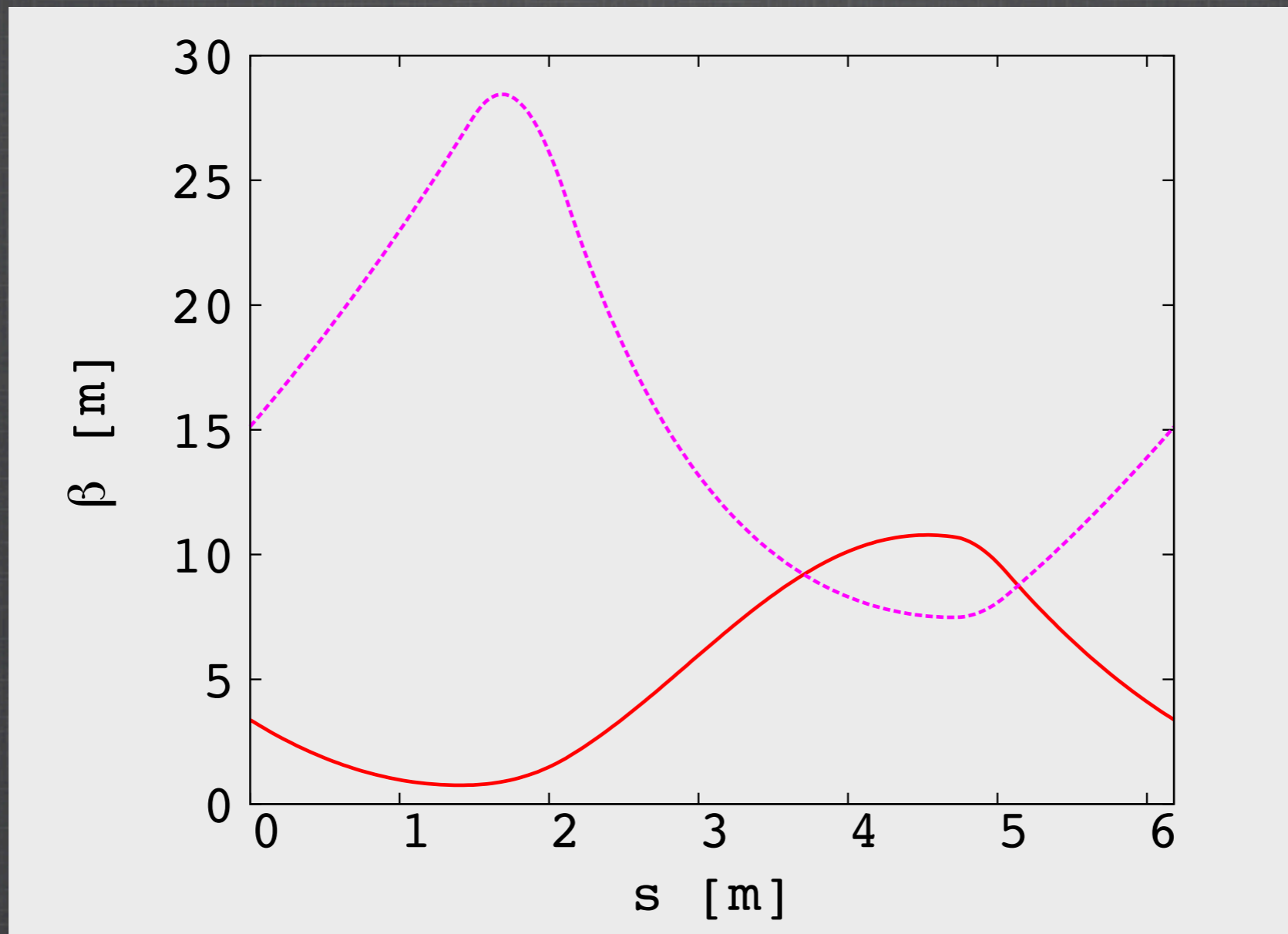


Closed orbits for injection and
extraction energies

RF parameters

Revolution frequency inj.~ext.	0.314 MHz ~ 1.827 MHz
harmonic number	1
Acceleration time	40 ms
RF voltage V_{RF}	22.5 kV

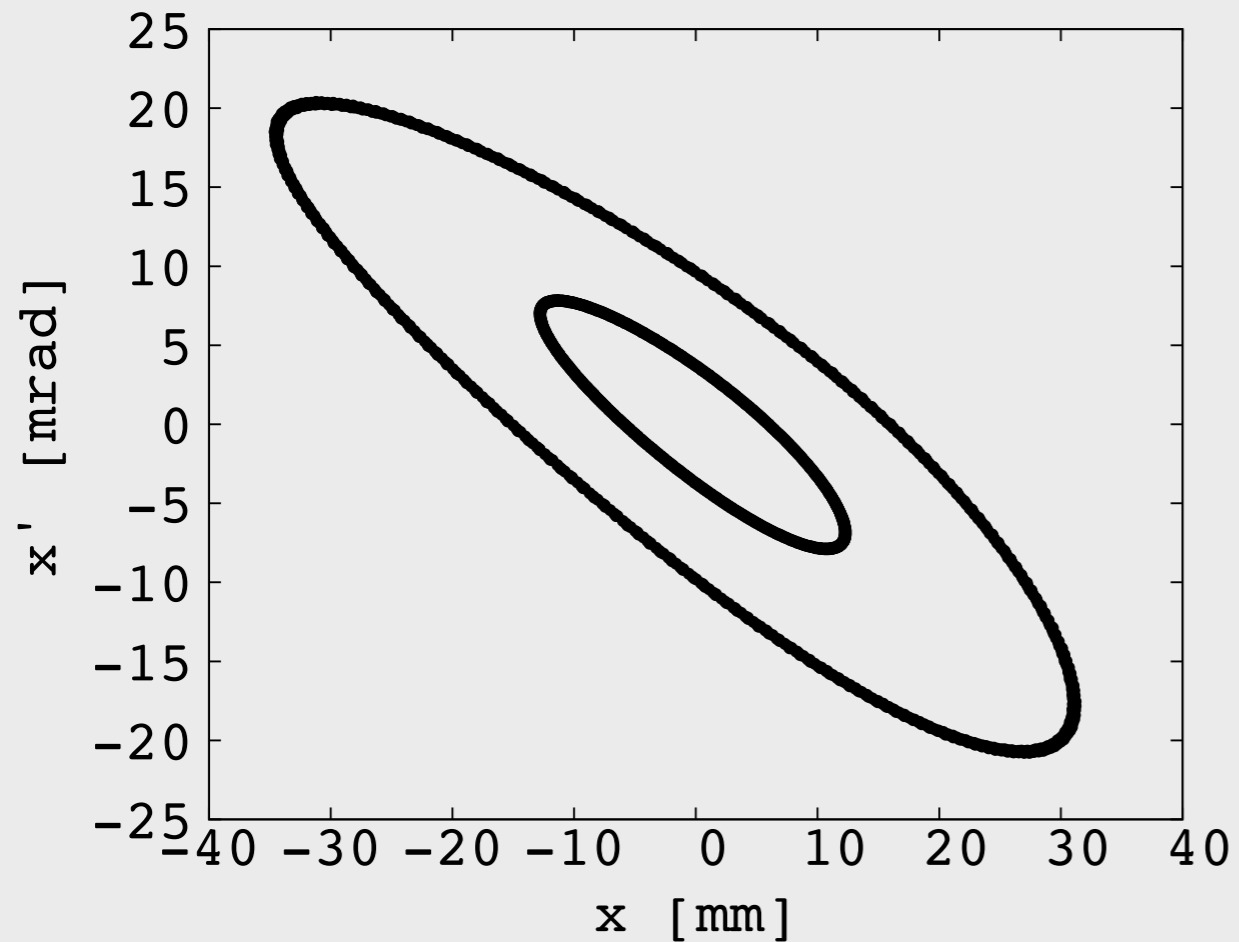
FFAG spiral beta-functions



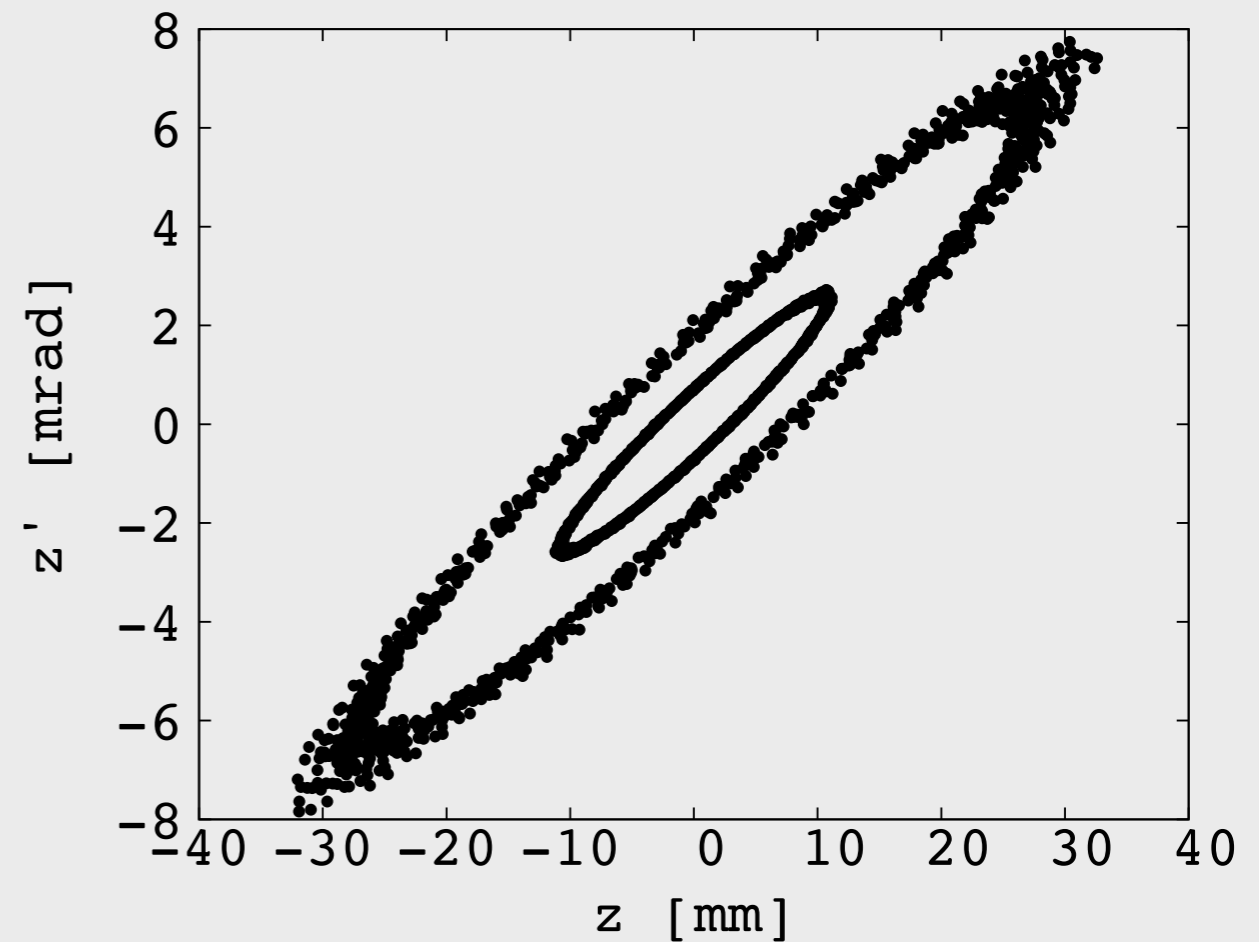
Horizontal (plain red) and vertical (dotted purple) betafunctions for one cell.

FFAG spiral

Dynamic apertures



Maximum horizontal stable
amplitude over 100 turns
(300π mm.mrad)



Maximum vertical stable
amplitude over 100 turns
(100π mm.mrad)

HI FFAG injector comparison

	FFAG	Linac	Synchrotron
Repetition rate	●	●	▲
Cost	●	✕	▲
Injection/ Extraction	▲	●	▲