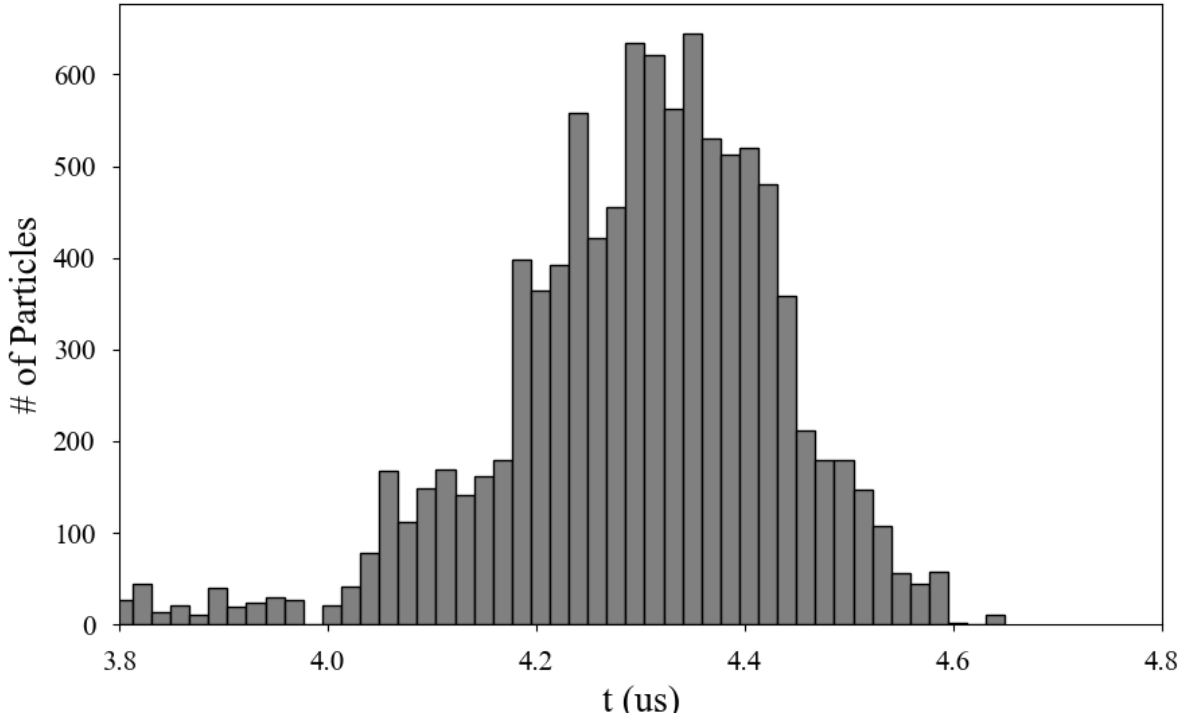
Current Status of Electrode Simulation

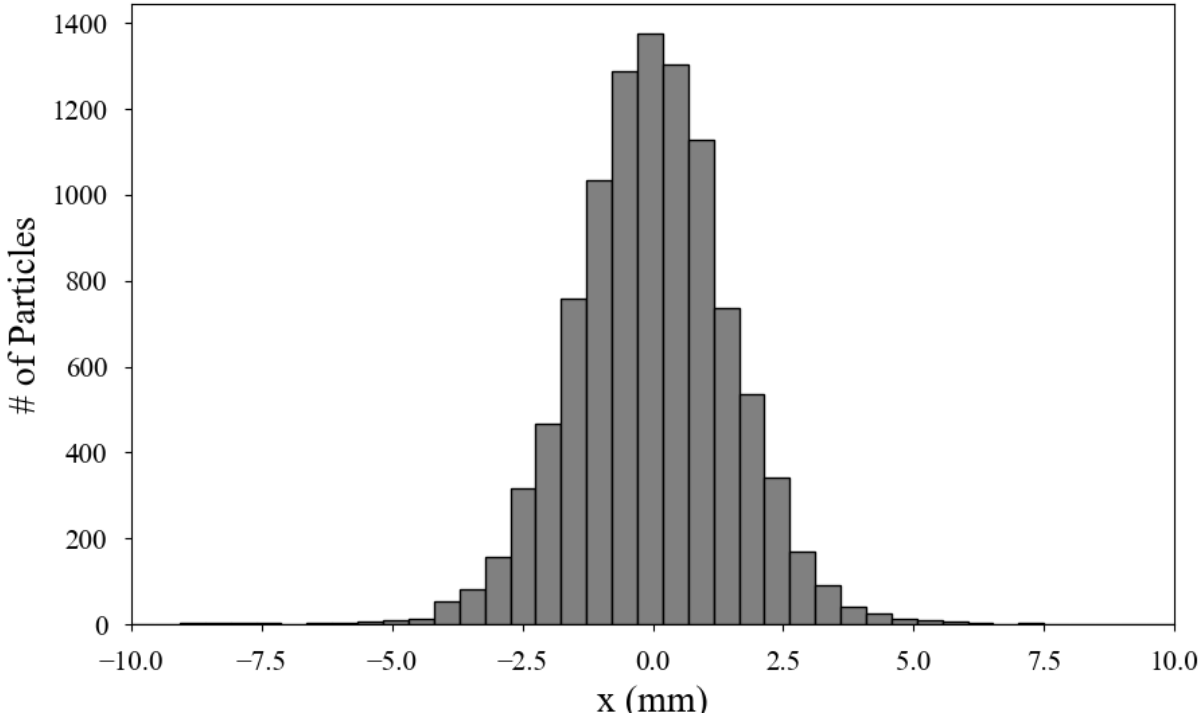
Kyoung-Hun Yoo

Catching pbar

Initial Beam



$1\ \sigma \sim 150\ ns$



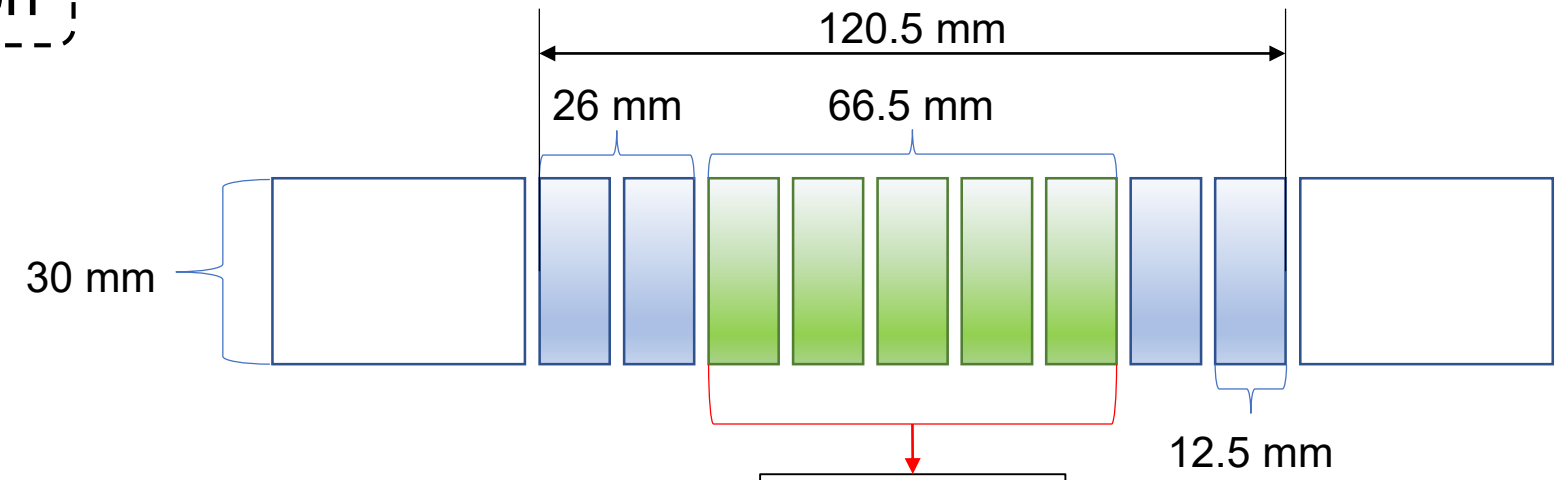
$1\ \sigma \sim 1.6\ mm$

Catching pbar

Magnet Bore Size : ID = 100 mm

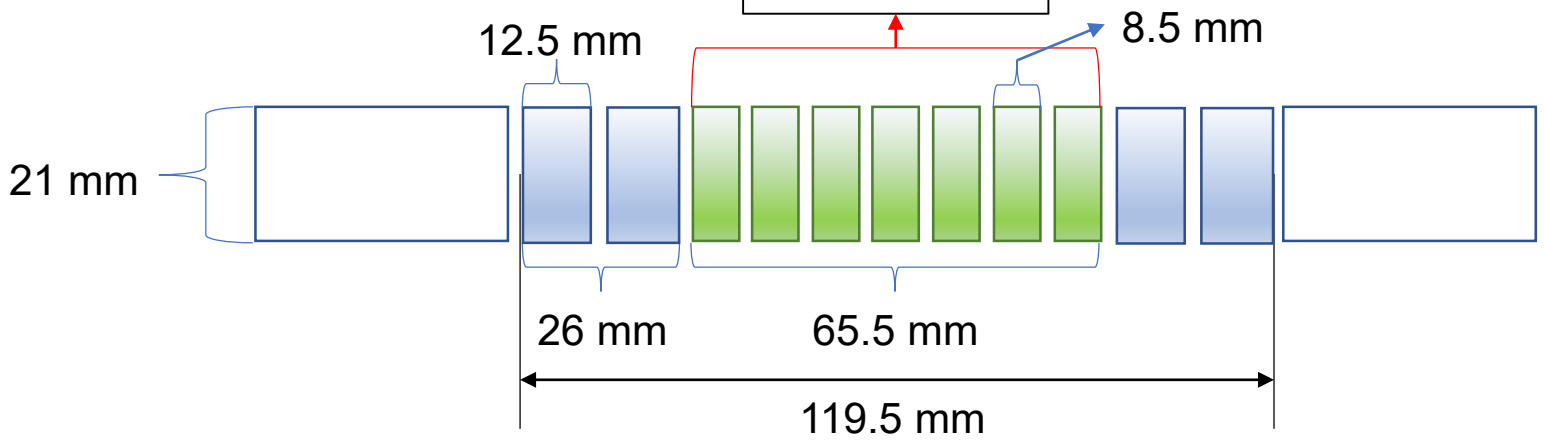
Trap Dimension

Previous Design



Harmonic Well

Design for KU Magnet

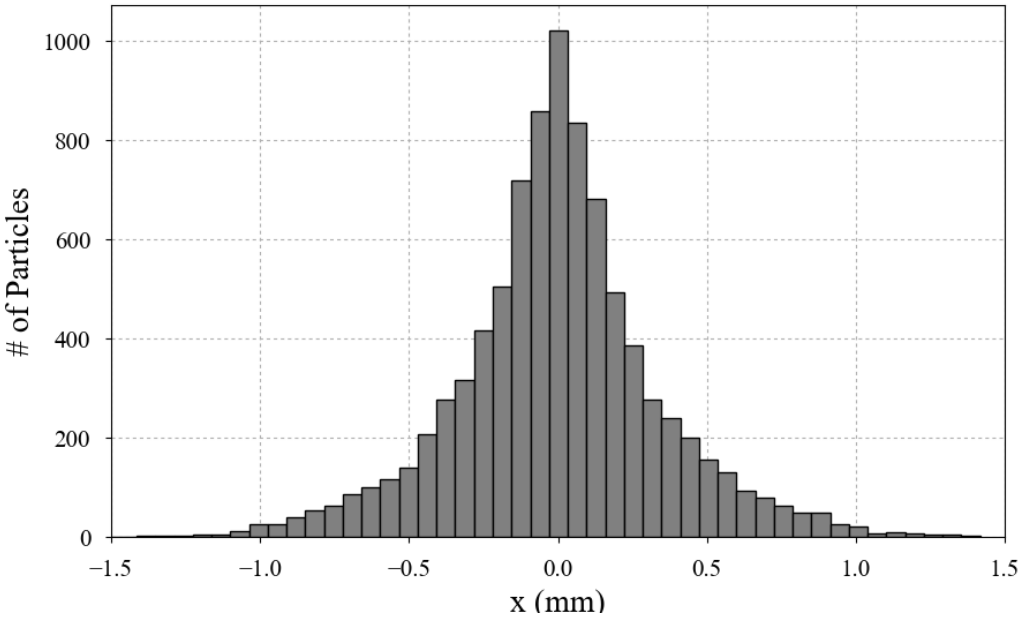


Catching pbar

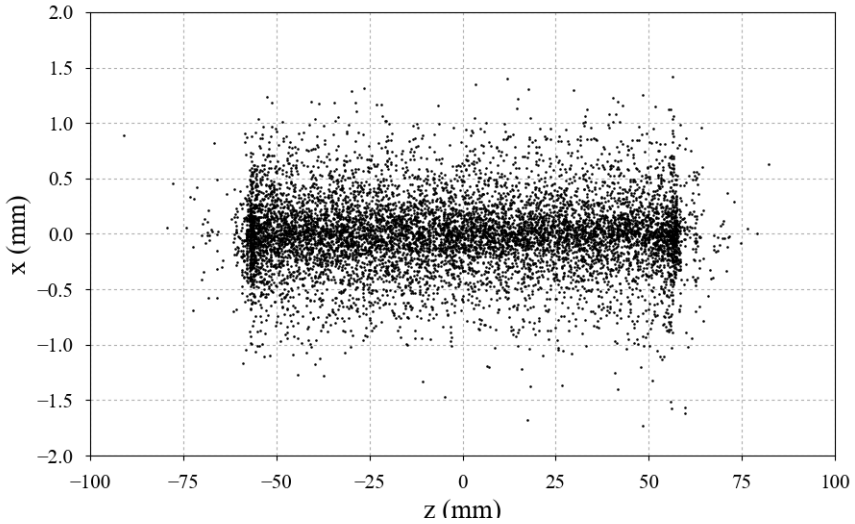
Previous Design

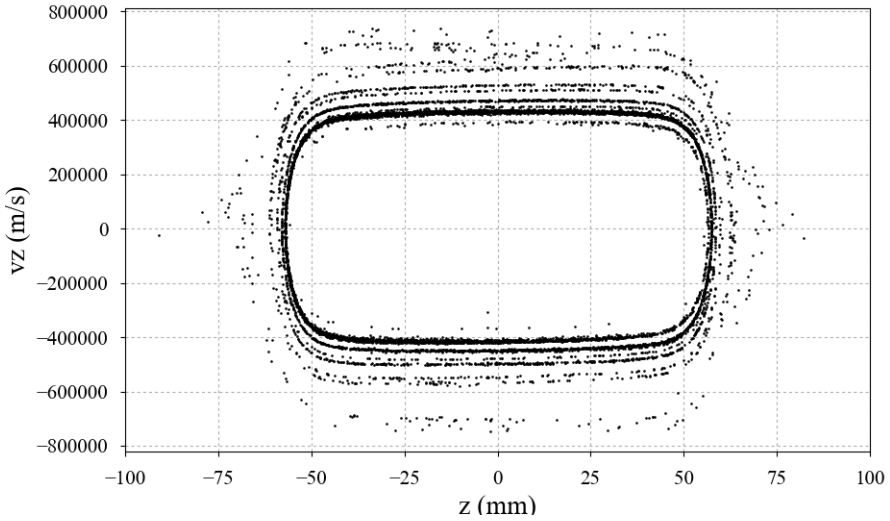
Magnet Bore Size : ID = 100 mm

Trapped Particles



$1\,\sigma \sim 0.344\ mm$



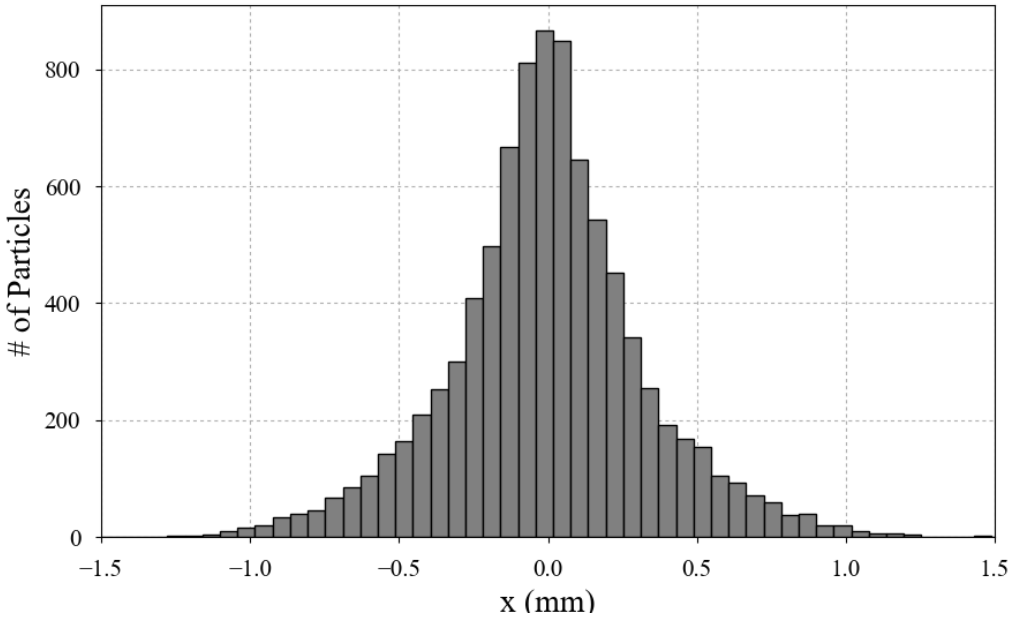


Catching pbar

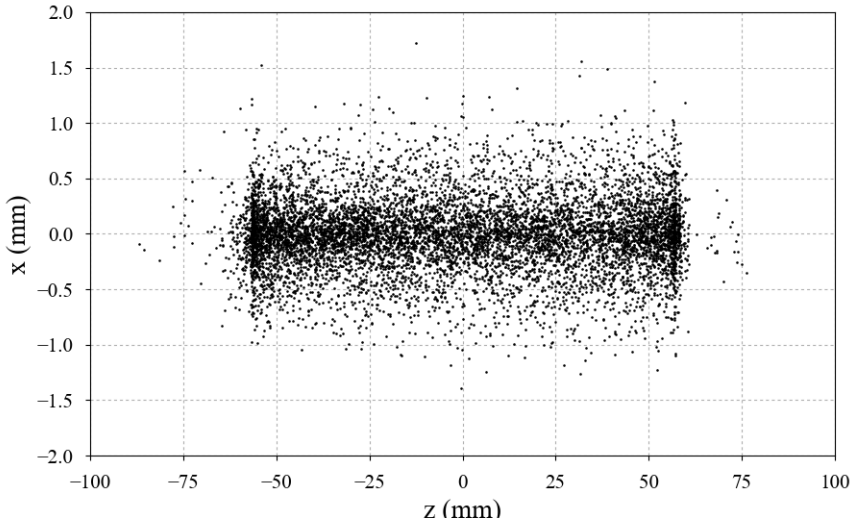
Design for KU Magnet

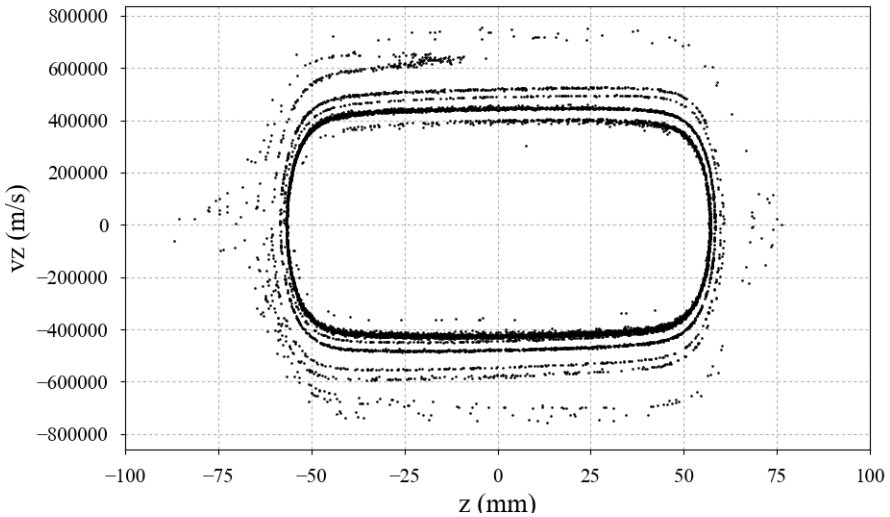
Magnet Bore Size : ID = 100 mm

Trapped Particles



$1\,\sigma \sim 0.337\ mm$

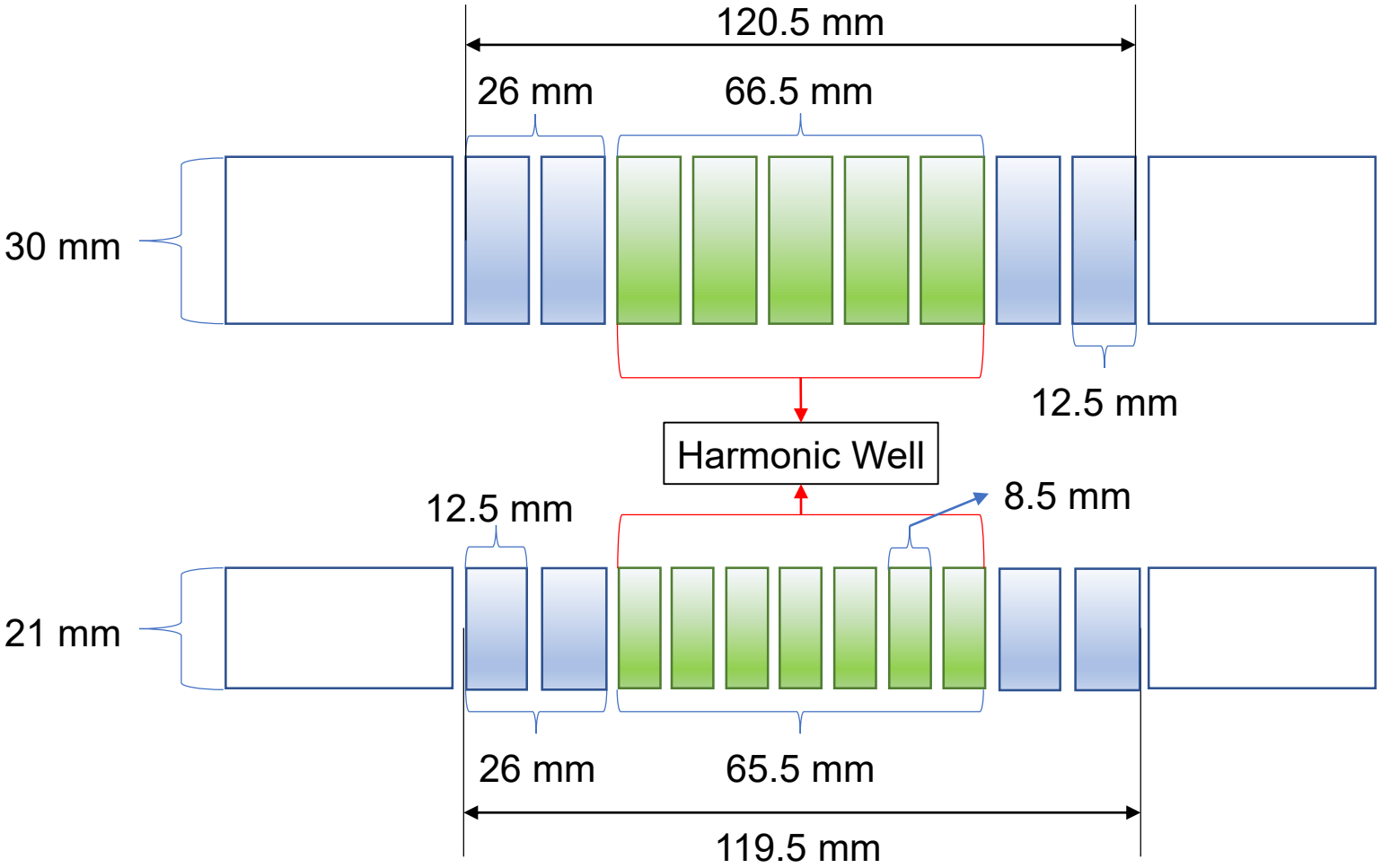




Catching pbar

Magnet Bore Size : ID = 100 mm

Trapping Efficiency

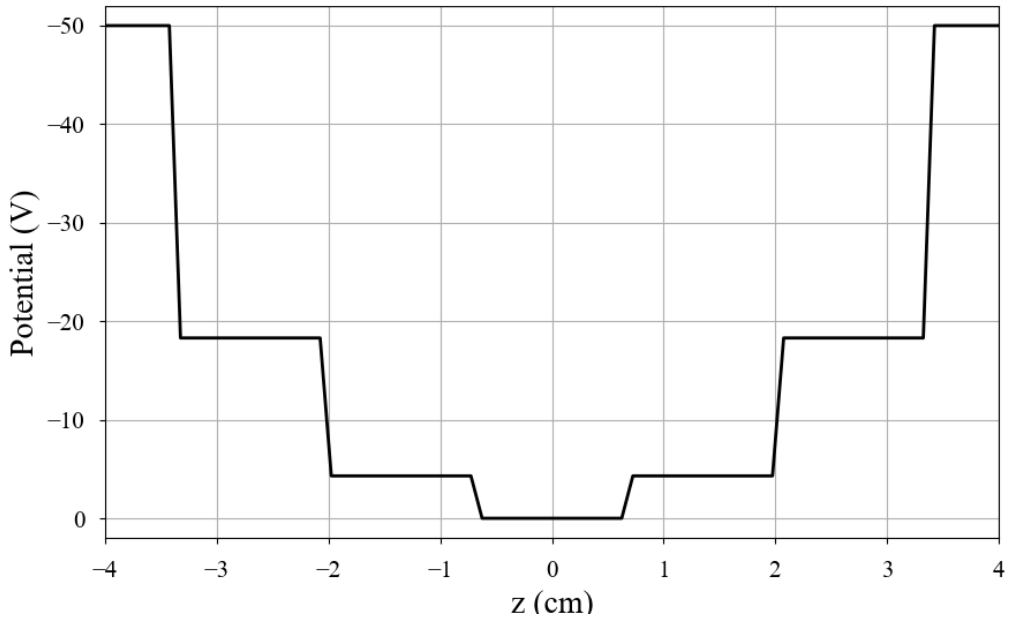


	ID / Length (mm)	Eff (%)
Previous Design	30 / 120.5	88.4
Design for KU Magnet	21 / 119.5	88.35

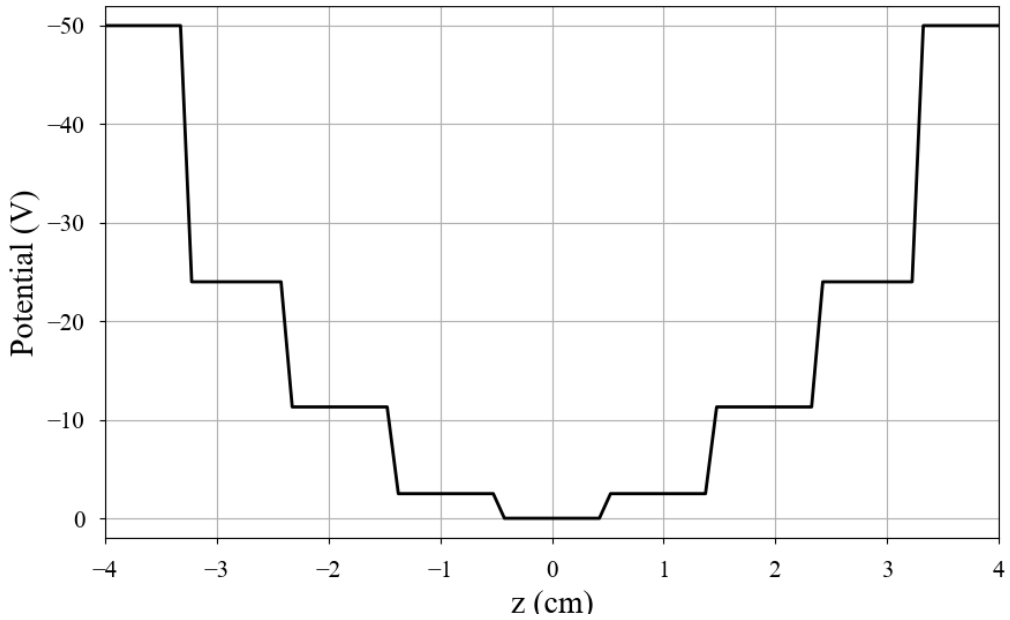
Harmonic Potential Well

Applied Voltage

Previous Design



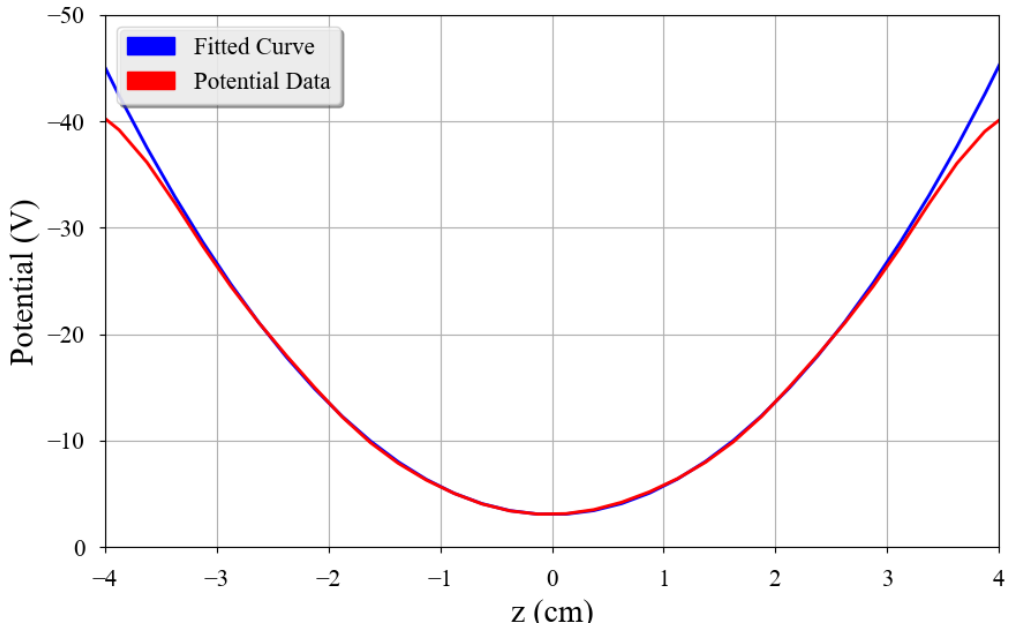
Design for KU Magnet



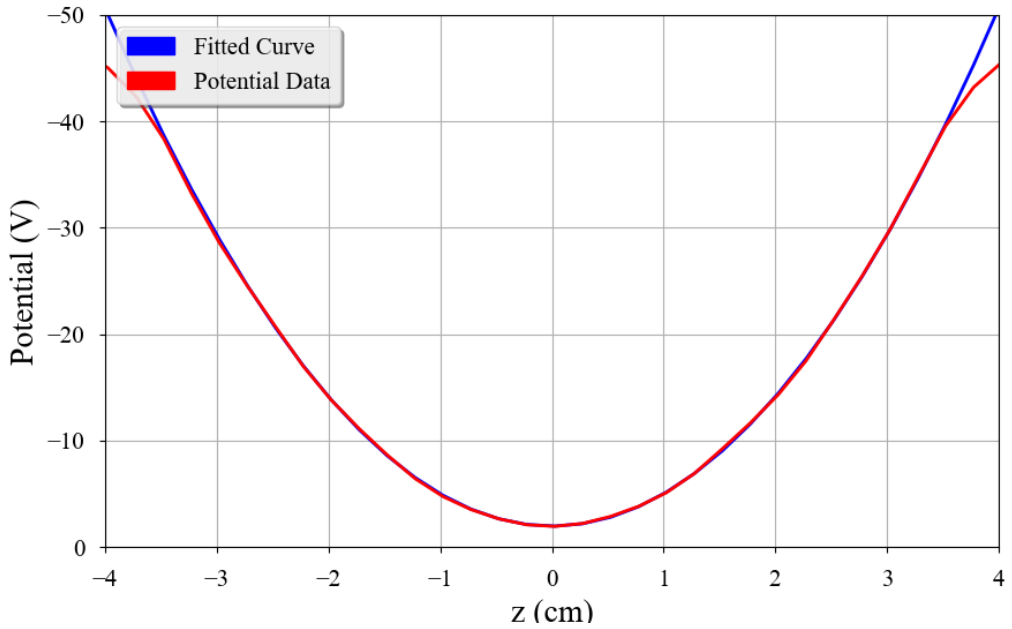
Harmonic Potential Well

Potential Data & Fitted Curve

Previous Design



Design for KU Magnet

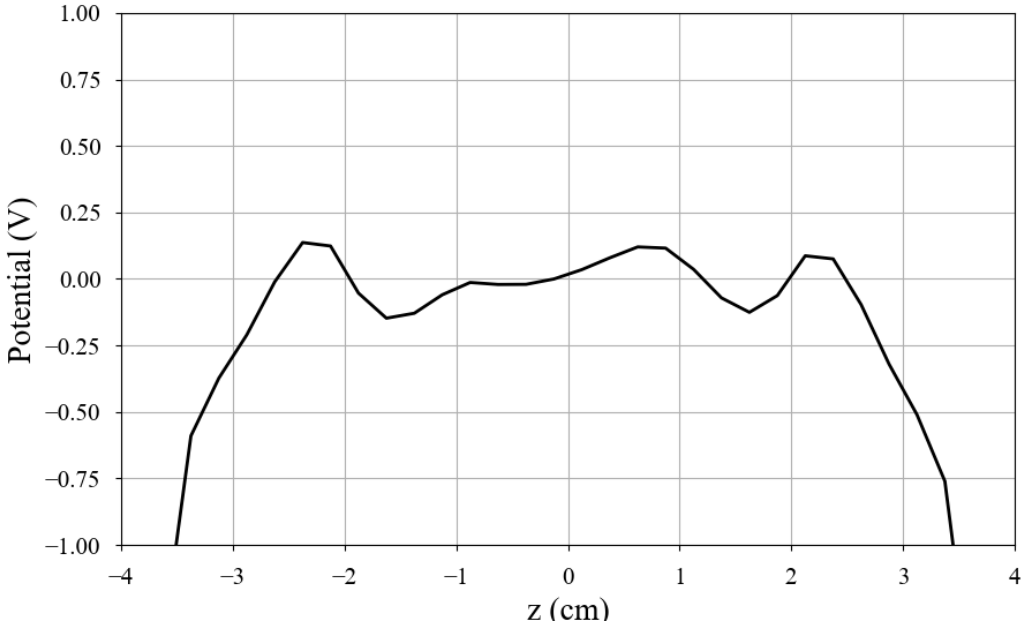


Harmonic Potential Well

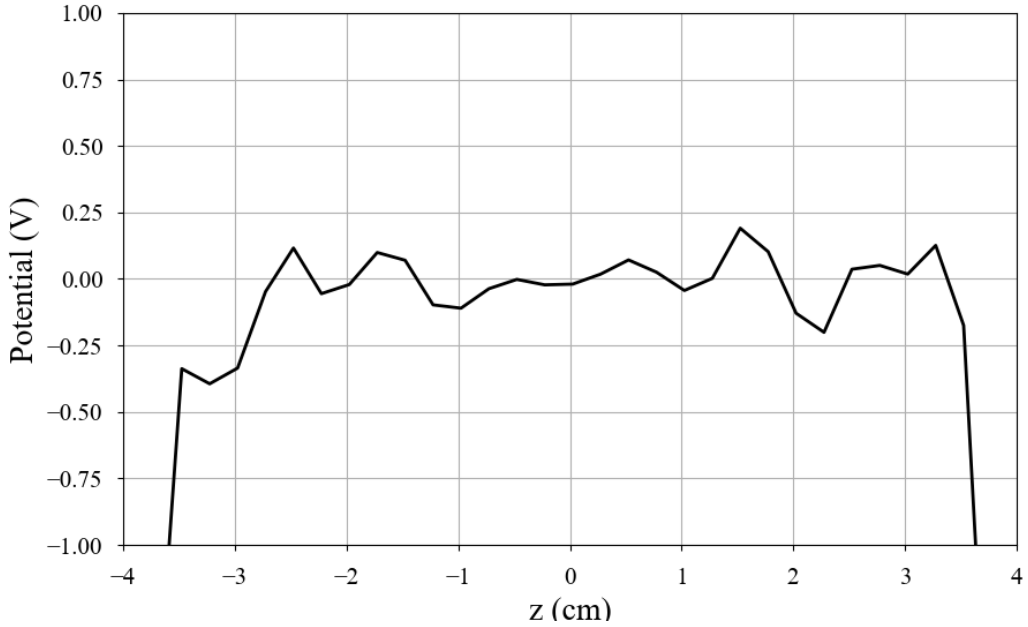
Error between Data & Fitted Curve

Error (-2 ~ +2 cm) < 0.25 V in both cases

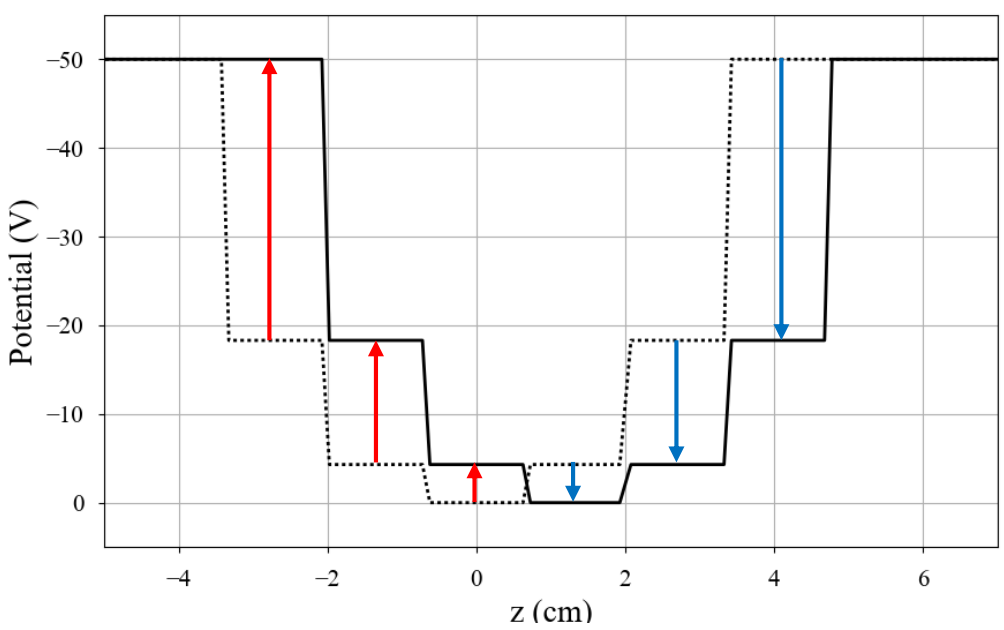
Previous Design

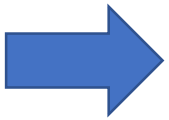


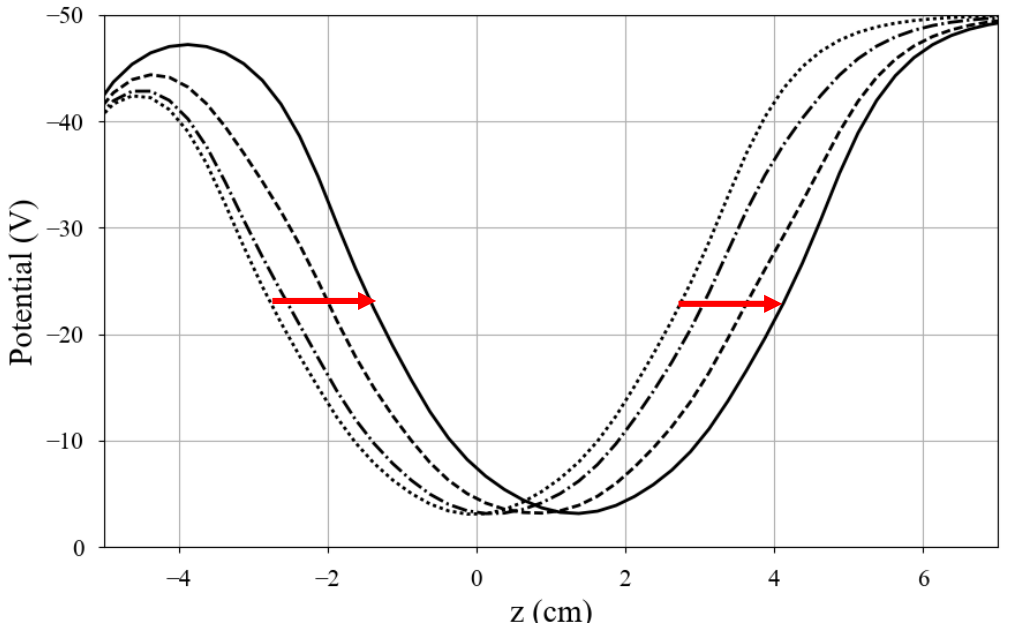
Design for KU Magnet



Moving Potential Well from Catching Trap to Manipulation Trap

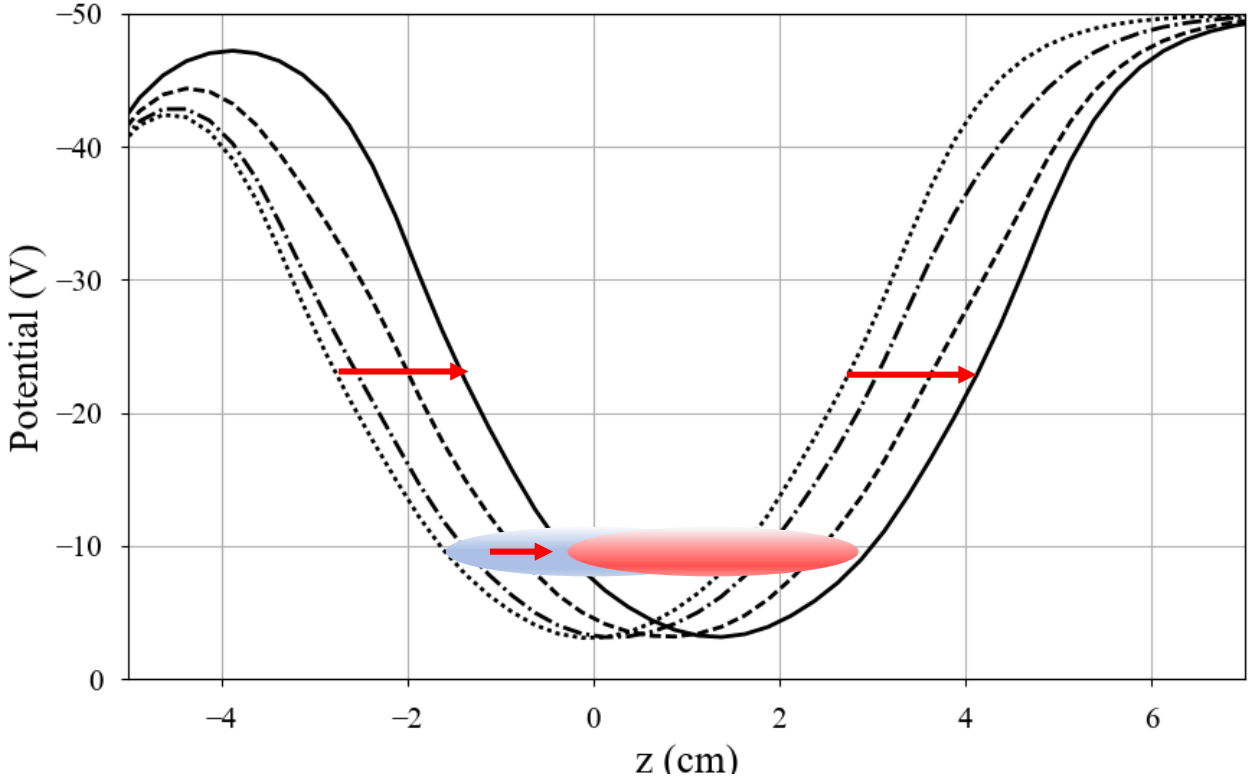






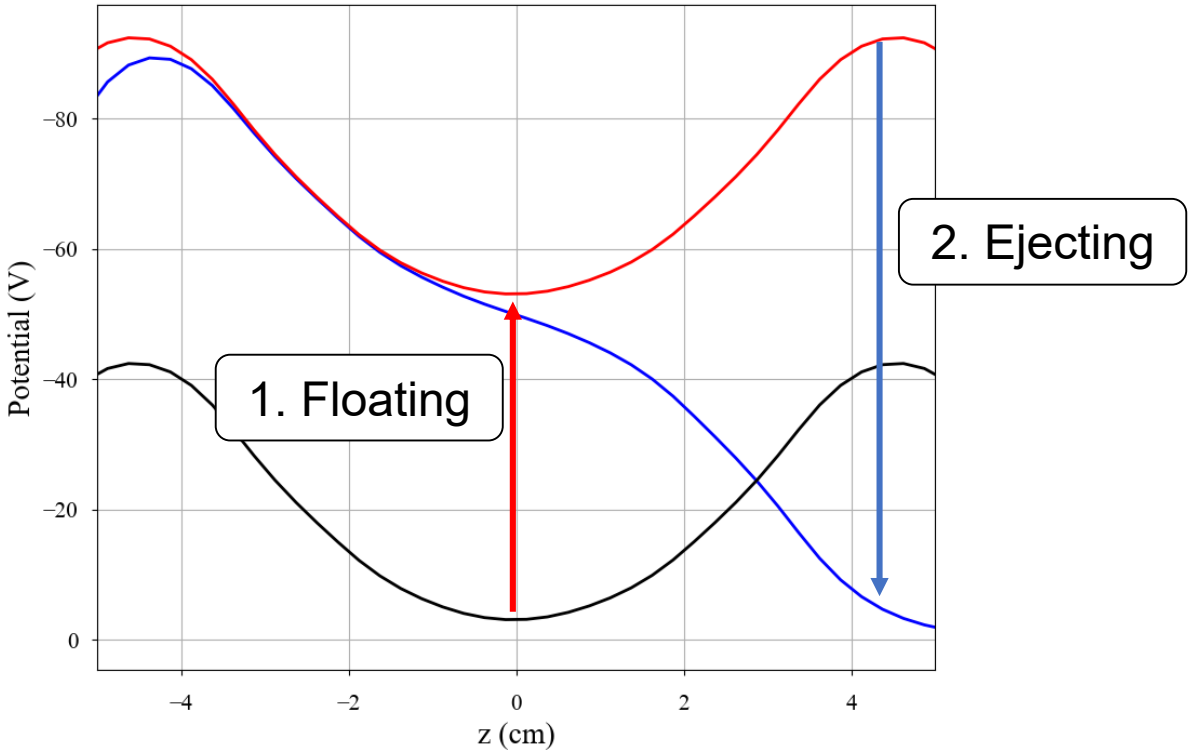
Simulation moving potential well as length of one electrode.
Applied voltages on each electrodes are slowly changed.
Inner diameter of electrodes : 30 mm (Based on previous design).

Moving Particles with Potential Well from Catching Trap to Manipulation Trap



After generating the beam distribution with equilibrium in harmonic well (in progress), moving particles with potential well will be simulated.

Ejecting Particles from Manipulation Trap



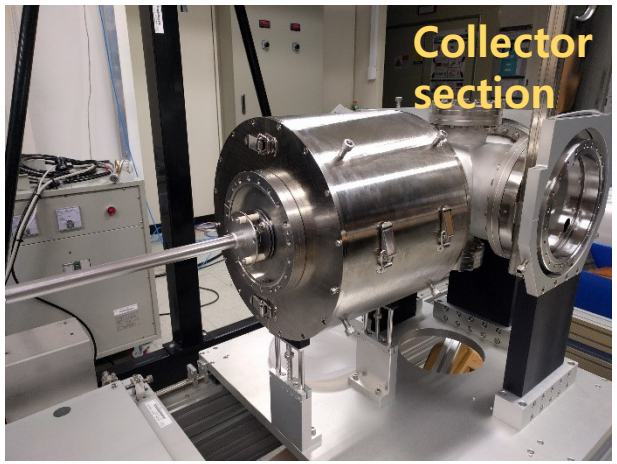
First, the beam distribution compressed by rotating wall will be generated (in progress). Next, ejecting compressed particles from manipulation trap will be simulated.

EBIS charge breeder for RISP

- Experimental hall for accelerator (KOREA Uni.)

- SC magnet for EBIS system

- Component of EBIS system



- Test ion source module (Cs+1)