

CeC Physics

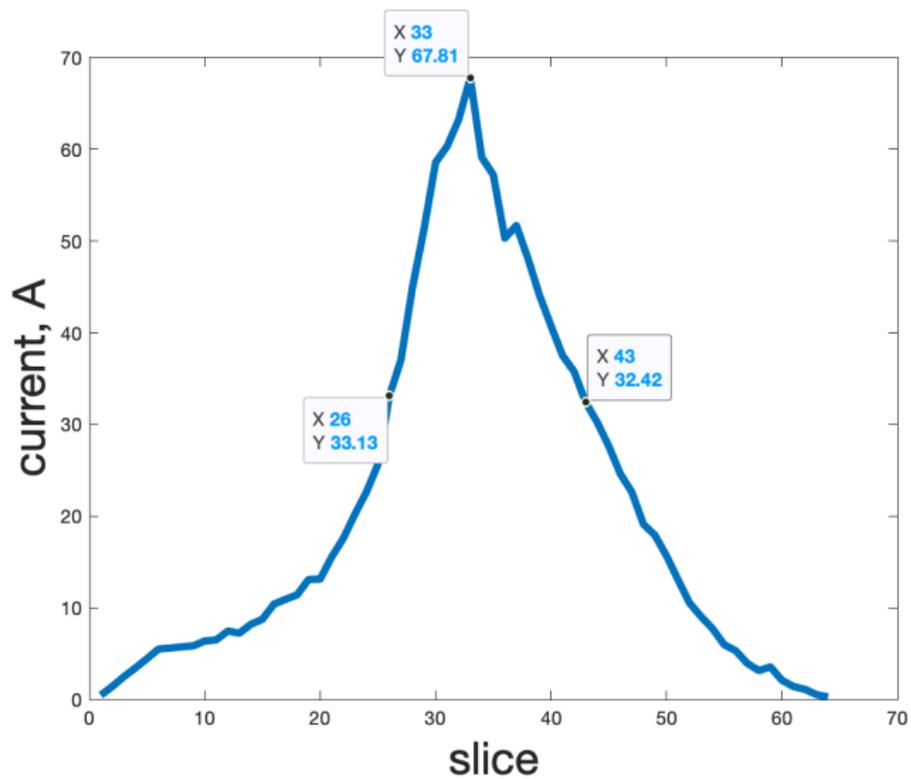
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8/5/2022

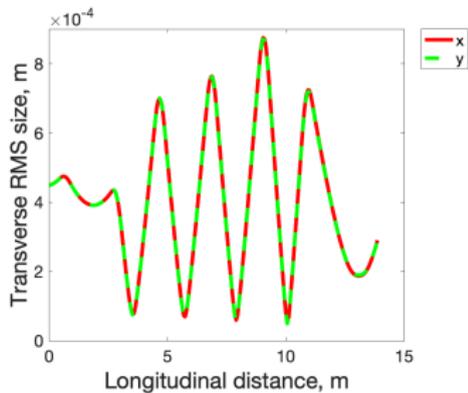
- Sol17 at 58.77 A, Sol26 at 117.54 A, Sol345 at 122.586 A
- Designed for beam current 50 A, KV emittance $6 \mu\text{m}$, energy spread $2\text{e-}4$, initial β 4.53 m, initial α -0.18

- Take slice parameters from beam dynamics simulations, entire beam has 200,000 computational particles, and is divided into 64 slices, with slice length 1.13 ps.

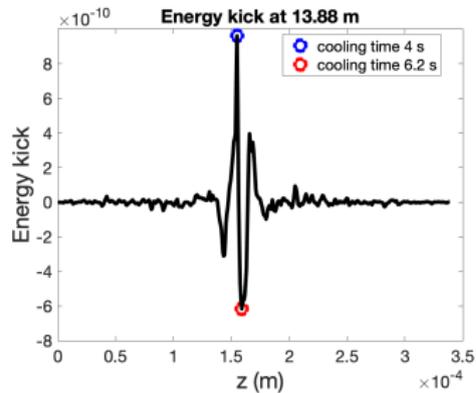


(a)

Slice 26

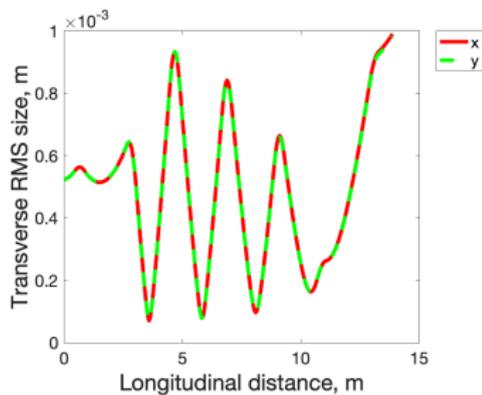


(a)

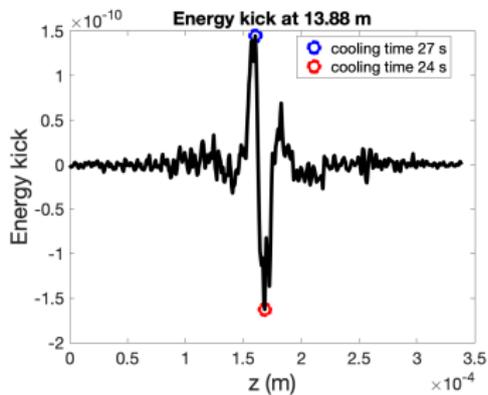


(b)

Slice 33

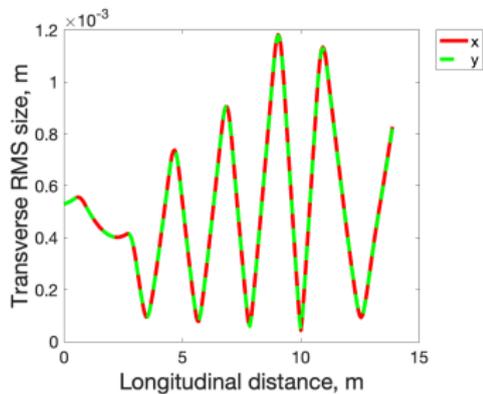


(a)

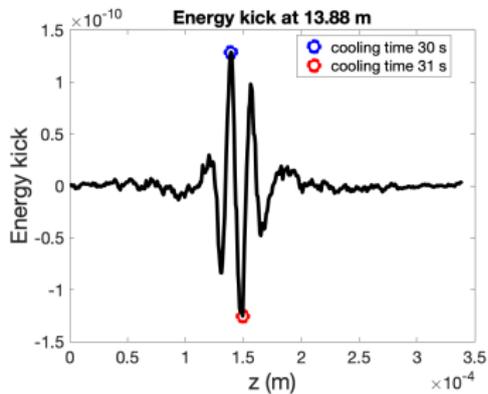


(b)

Slice 43



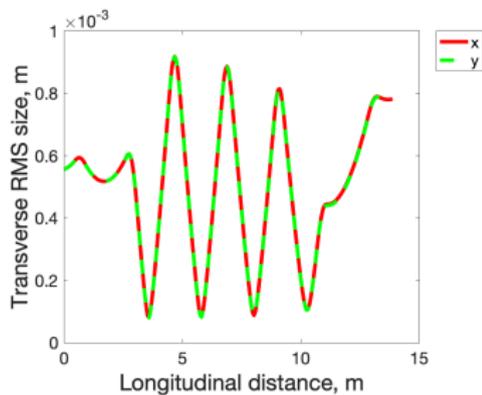
(a)



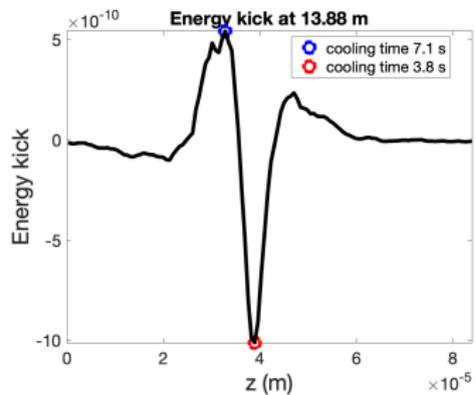
(b)

- Take slice parameters from beam dynamics simulations, entire beam has 200,000 computational particles, and is divided into 256 slices, with slice length 0.28 ps.
- +/- 10% charge variation. For each case, only choose the slice with highest peak current:
 - +10% charge, beam current 64 A, γ 28.51, energy spread $1.2e-4$, KV emittance $6.8 \mu\text{m}$, initial β 5.2 m, initial α -0.193
 - -10% charge, beam current 70.7 A, γ 28.505, energy spread $1.46e-4$, KV emittance $5.68 \mu\text{m}$, initial β 4.7 m, initial α -0.154

+10% charge

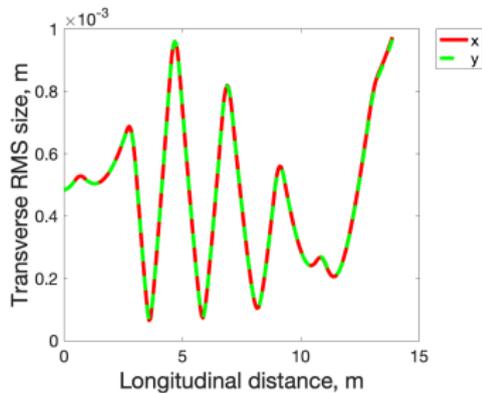


(a)

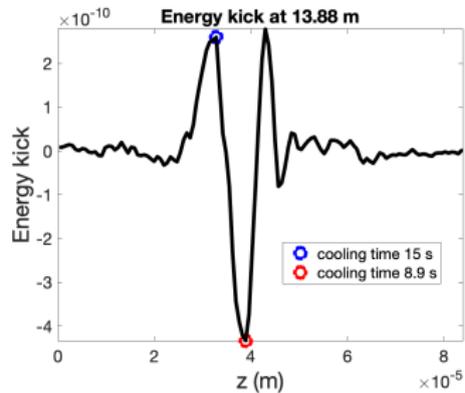


(b)

+10% charge



(a)



(b)