

CeC Physics

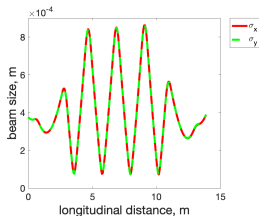
Jun Ma

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Brookhaven National Laboratory

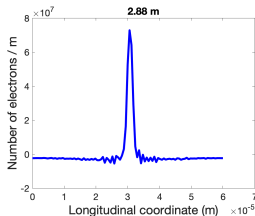
11/5/2021

- Peak current 50 A, KV emittance $6 \mu\text{m}$
- Modulator 2.88 m
- Beam waist 0.15 / 0.18 / 0.12 mm
- The single ion with reference energy is located at $z=3\text{e-}5$ m in the plots.
- Beam waist 0.15 mm, with earth field $B_y=5\text{e-}5$ T

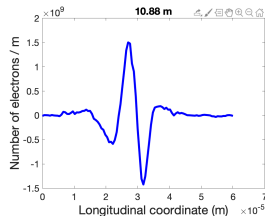
Beam waist 0.15 mm



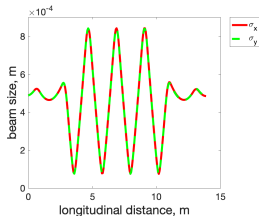
(a) Beam size



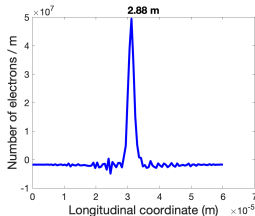
(b) Exit of modulator



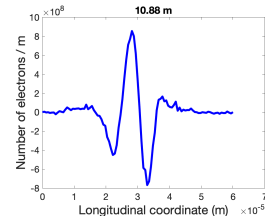
(c) Entrance of kicker



(d) Beam size

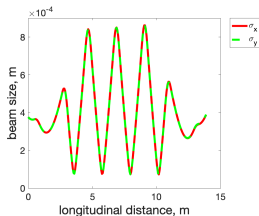


(e) Exit of modulator



(f) Entrance of kicker

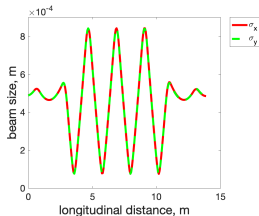
Beam waist 0.15 mm



(a) Beam size

(b) Density, 2D

(c) Density, 1D

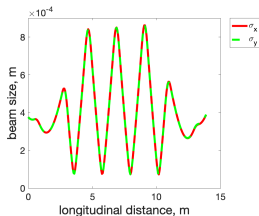


(d) Beam size

(e) Density, 2D

(f) Density, 1D

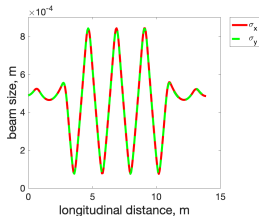
Beam waist 0.15 mm



(a) Beam size

(b) Energy kick, 2D

(c) Energy kick, 1D

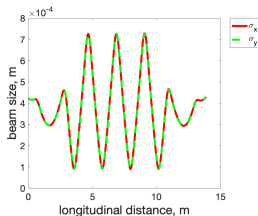


(d) Beam size

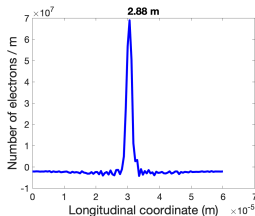
(e) Energy kick, 2D

(f) Energy kick, 1D

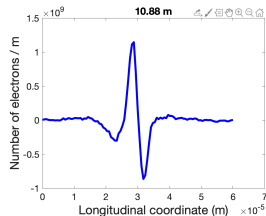
Beam waist 0.18 mm



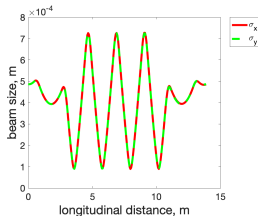
(a) Beam size



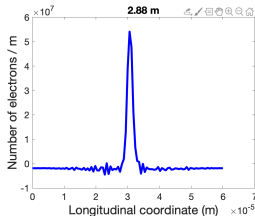
(b) Exit of modulator



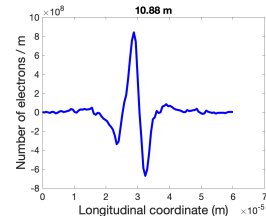
(c) Entrance of kicker



(d) Beam size

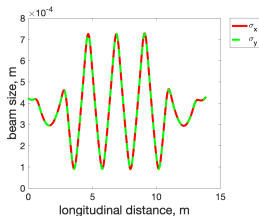


(e) Exit of modulator



(f) Entrance of kicker

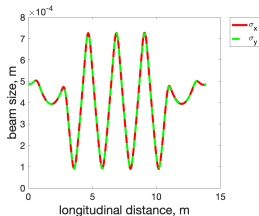
Beam waist 0.18 mm



(a) Beam size

(b) Density, 2D

(c) Density, 1D

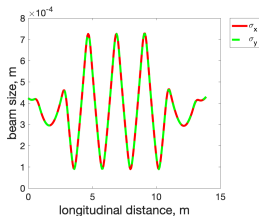


(d) Beam size

(e) Density, 2D

(f) Density, 1D

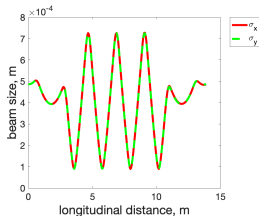
Beam waist 0.18 mm



(a) Beam size

(b) Energy kick, 2D

(c) Energy kick, 1D

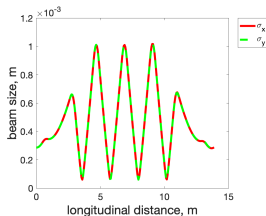


(d) Beam size

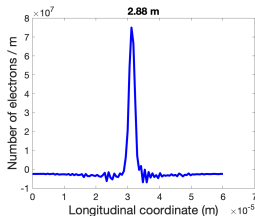
(e) Energy kick, 2D

(f) Energy kick, 1D

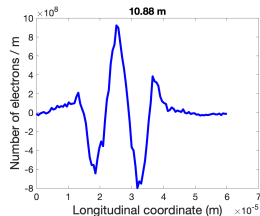
Beam waist 0.12 mm



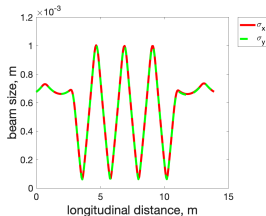
(a) Beam size



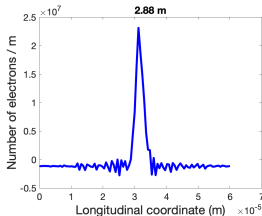
(b) Exit of modulator



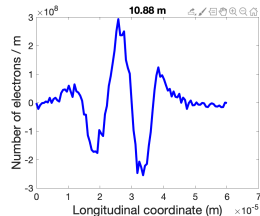
(c) Entrance of kicker



(d) Beam size

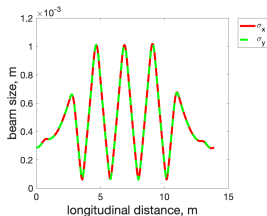


(e) Exit of modulator



(f) Entrance of kicker

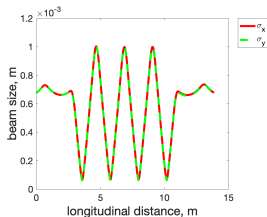
Beam waist 0.12 mm



(a) Beam size

(b) Density, 2D

(c) Density, 1D

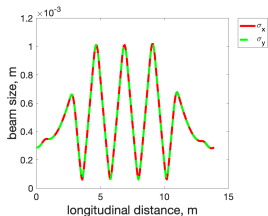


(d) Beam size

(e) Density, 2D

(f) Density, 1D

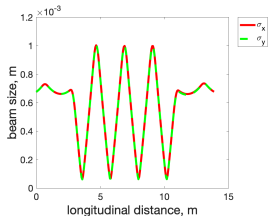
Beam waist 0.12 mm



(a) Beam size

(b) Energy kick, 2D

(c) Energy kick, 1D

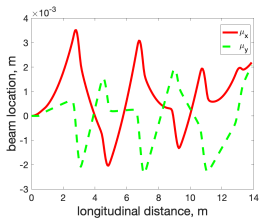


(d) Beam size

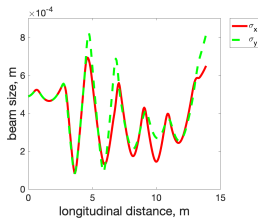
(e) Energy kick, 2D

(f) Energy kick, 1D

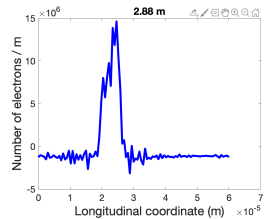
Beam waist 0.15 mm, with earth field $B_y=5e-5$ T



(a) Beam position



(b) Beam size



(c) Exit of modulator