

ICD-2: Next Step in the Process

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Where we are with ICD-2?

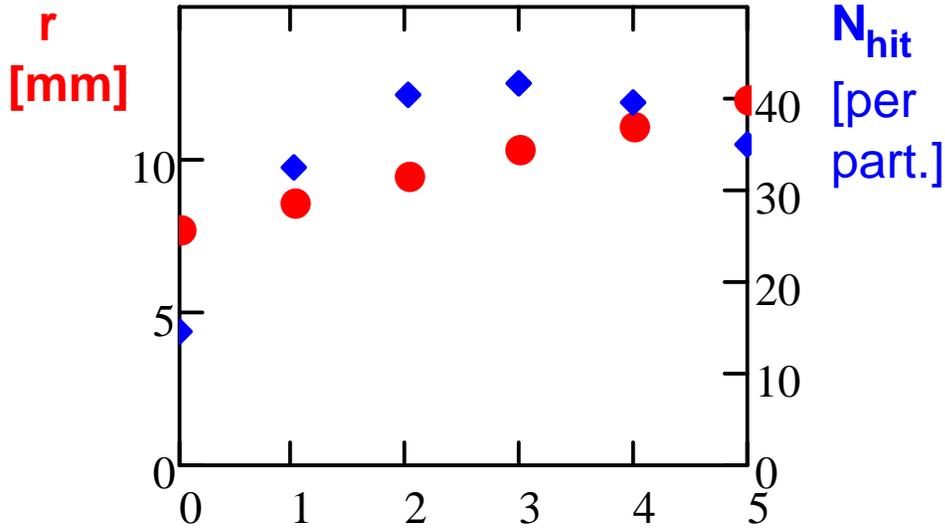
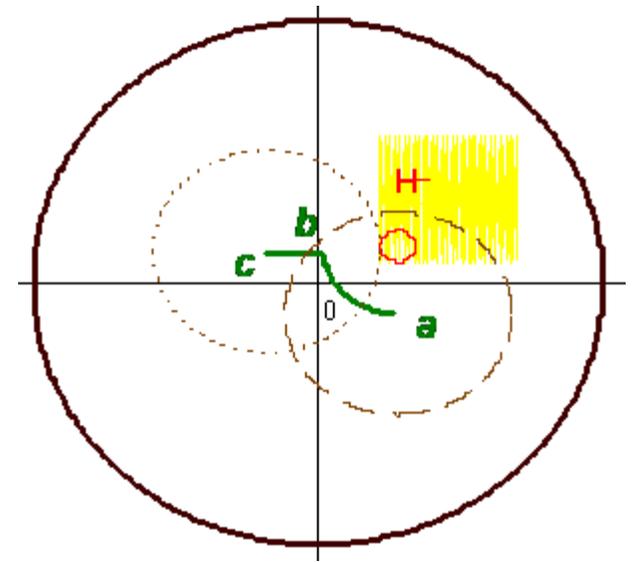
- ICD-2 is written
 - ◆ But already requires next iteration
 - ◆ ICD-1 will stay as a reference material (no further actions)
- Physics program at 2.X GeV has strong support
 - ◆ 2.6 - 3 GeV looks as a preferred option
 - ◆ Energy increase reduces difference in price for RCS and pulsed linac
 - No difference at 3 GeVbut pulsed linac has better potential for upgrades
- Two stage approach
 - ◆ CW linac 3 GeV
 - ◆ Pulsed linac + upgrades in MI & Recycler
- Cost reduction (<\$1B for stage 1)
 - ◆ 1.3 GHz → 650 MHz (~15% length, ~25% RF sources)
 - ◆ 3 GeV → 2.6 GeV
 - ◆ 1 mA → 0.5 mA
- Reliability & Reparability
 - ◆ Cryo-segmentation: separate cryomodules with warm space for instrumentation and focusing

Injection at 8 GeV

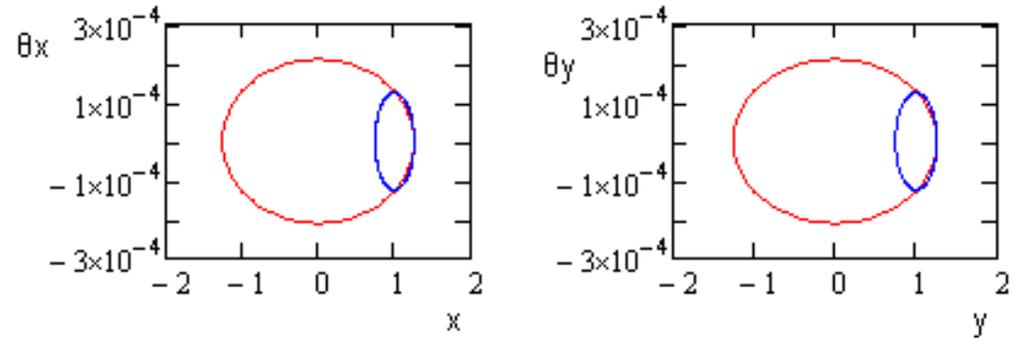
- Foil strip injection
 - ◆ Cannot be done for 1 pulse
 - Small current
 - Long injection
 - Many secondary hits of the foil
 - Foil overheating
- Laser stripping
 - ◆ Plan to make a proposal within next 2 months

Strip injection to Recycler

- Injection scheme is similar to RCS
- 6 injections to reduce the foil heating by already stored beam
 - ◆ An increase of painting radius with cycle number allows one to keep the number of secondary hits at acceptable level



Number of foil hits is counted per particles of one injection cycle (out of 6)



Linac: $I=1$ mA, $\beta_x=\beta_y=21$ m,

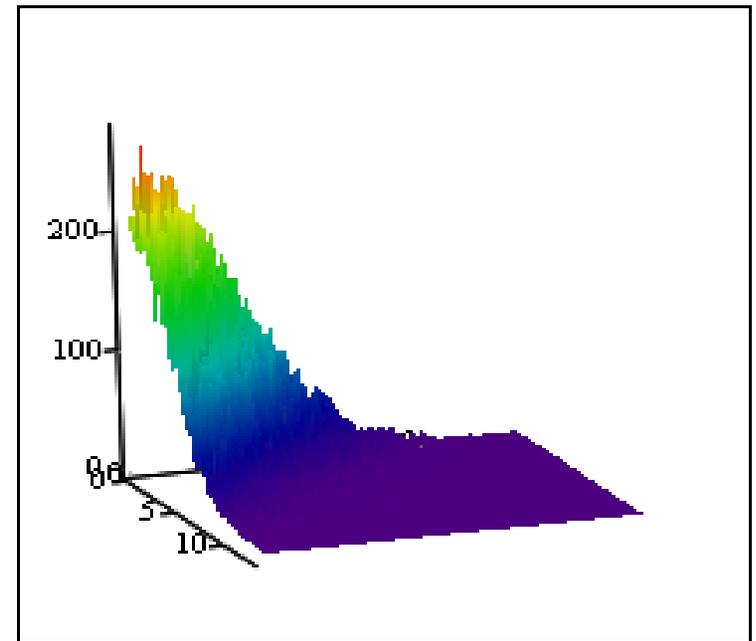
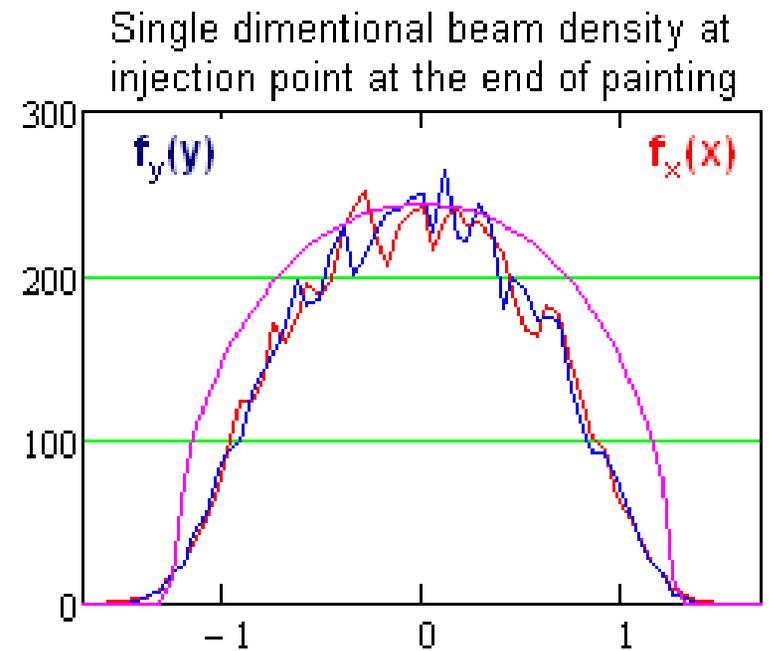
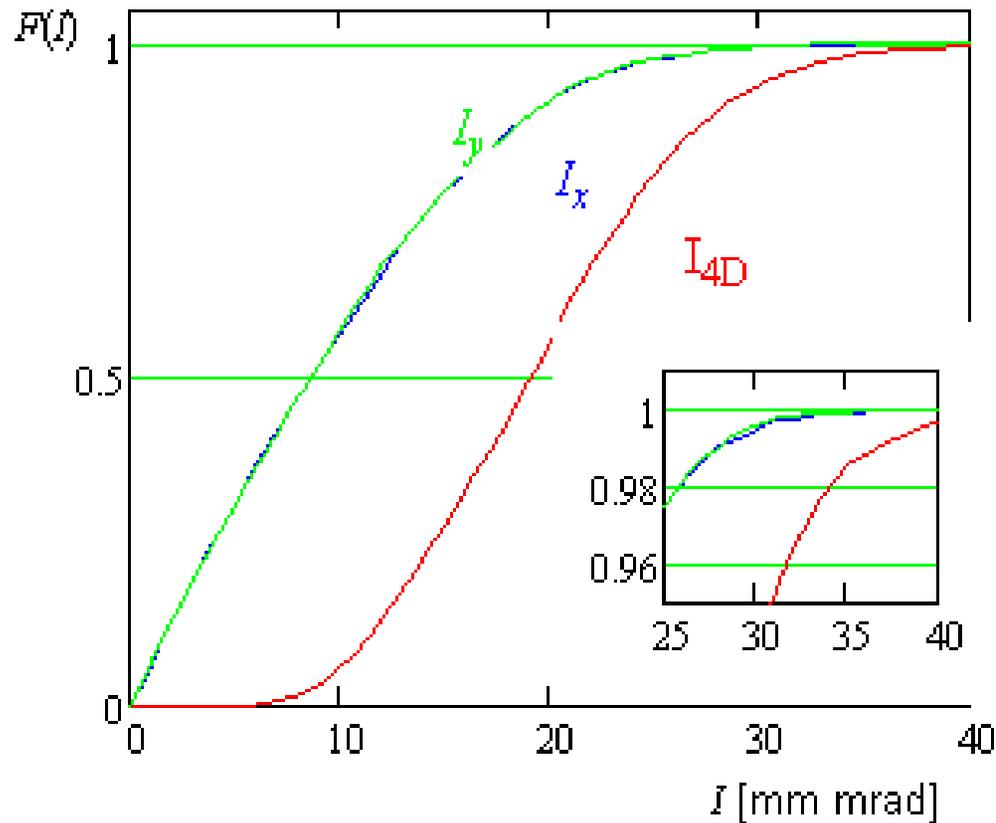
$\epsilon_{n_rms}=0.5$ mm mrad

Injection: 6 times of 4.3 ms (386 turns)

Recycler: $\beta_x=\beta_y=60$ m,

Acceptance - 25 mm mrad

- Because of painting radius increase the distribution is less KV-like than for the RCS case
- The same foil heating as for the RCS: 2.2 hits/mm²/(particle of 1 inj. cycle)



(10·X, 10·Y, P)