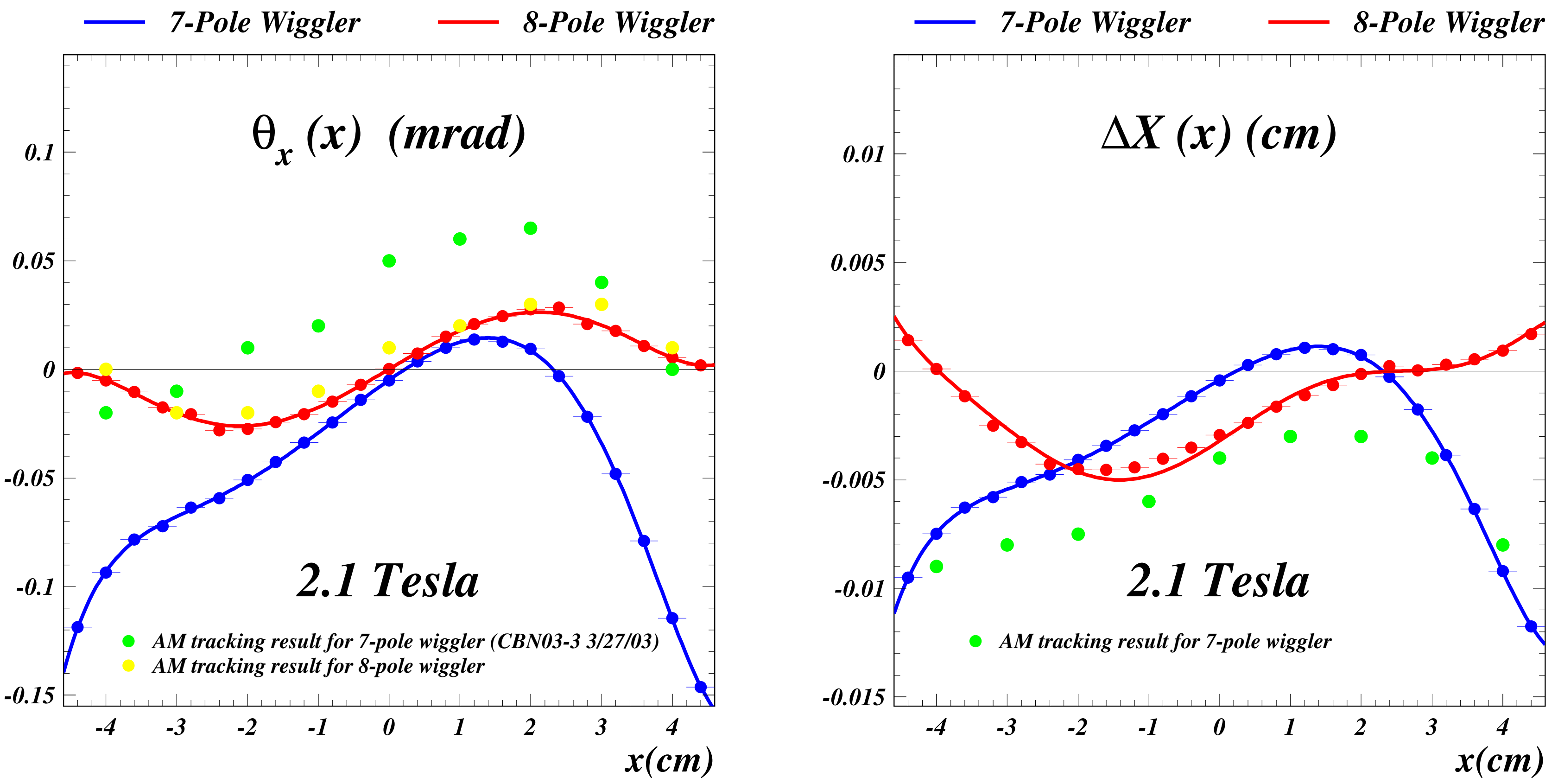
I. Comparison of Wiggler Transfer Functions Calculated Independently with the MERMAID (AM) and OPERA (JAC) Packages

II. Progress Report on Validation of Injection Tracking Simulation (with MGB)

Transfer Functions at 2.1 T Peak Field



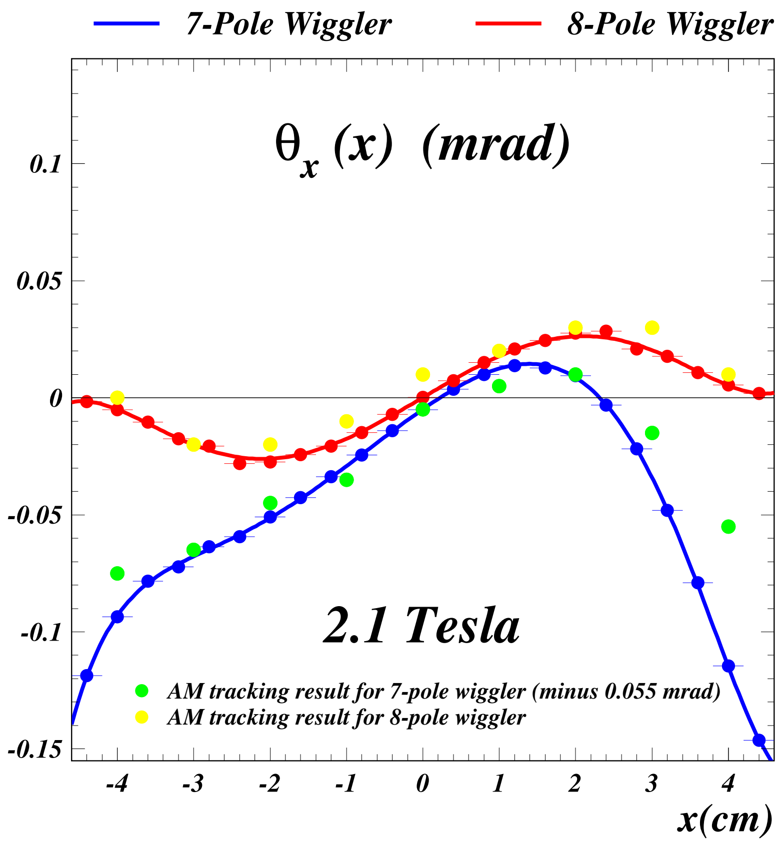
$\Rightarrow$ Excellent agreement for 8-pole kick

$\Rightarrow$ Quite good agreement for 7-pole case (can adjust level with trim)

MERMAID kick quantized in 10 μrad steps (momentum truncation)

Perhaps "edge effect" or "factor 2"

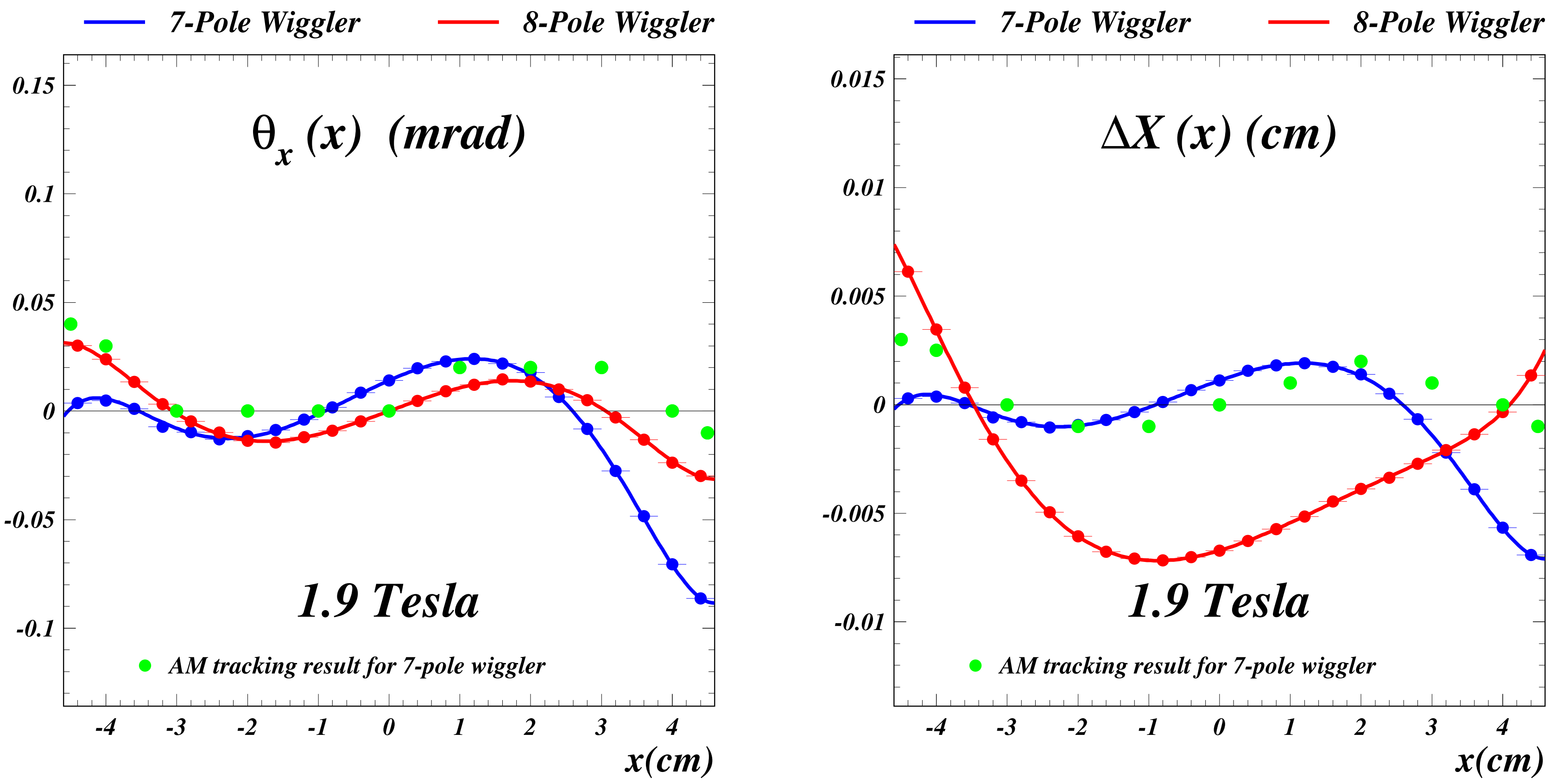
Transfer Functions at 2.1 T Peak Field



⇒ Adjust MERMAID calculation by 0.055 mrad (trim correction)

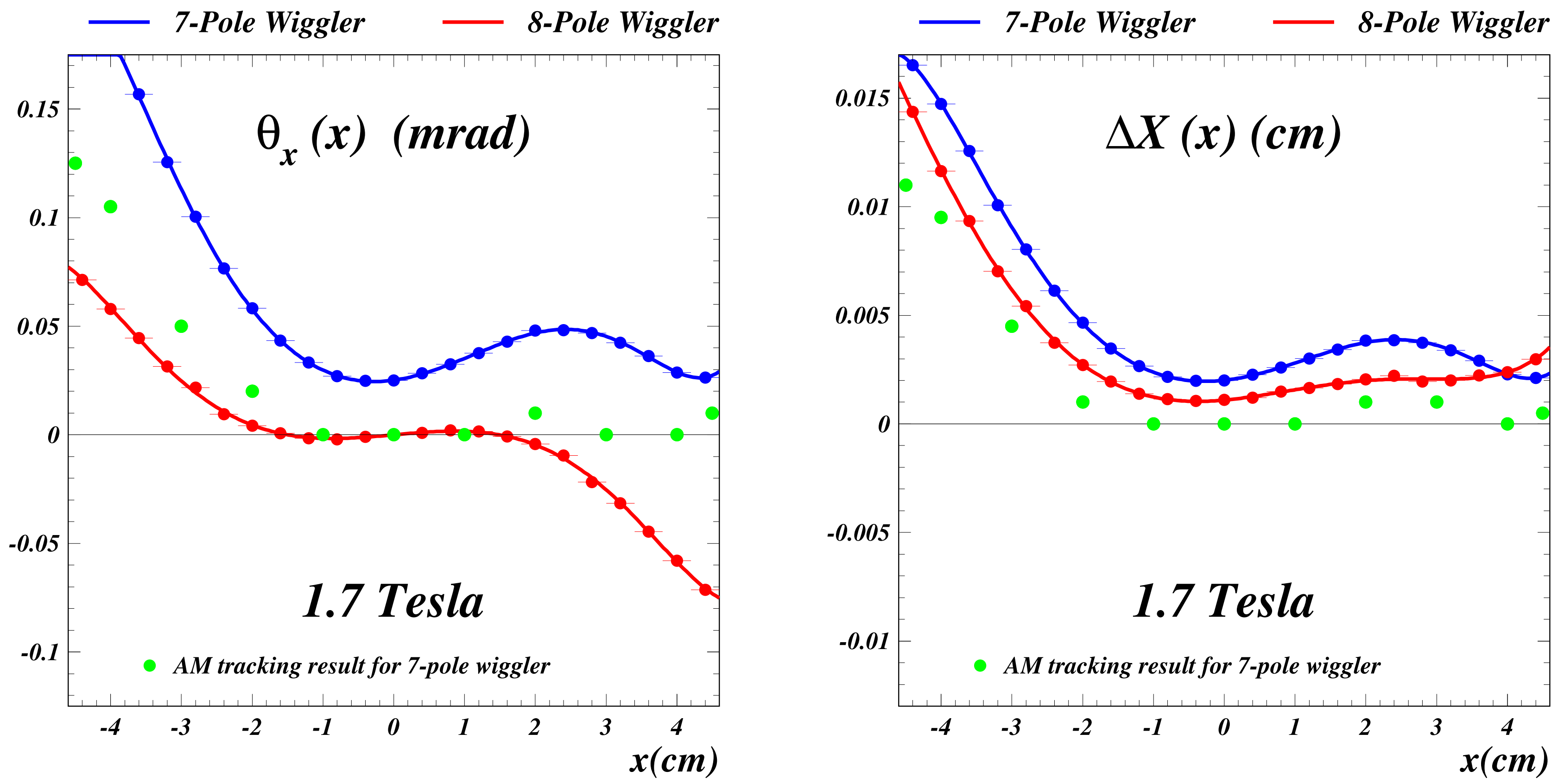
"Edge effect" or "factor 2" ??

Transfer Functions at 1.9 T Peak Field



- ⇒ Overall good agreement for 7-pole
- ⇒ OPERA shows better uniformity on one side, worse on the other
- ⇒ Displacement more nonuniform for 8-pole, but very small

Transfer Functions at 1.7 T Peak Field

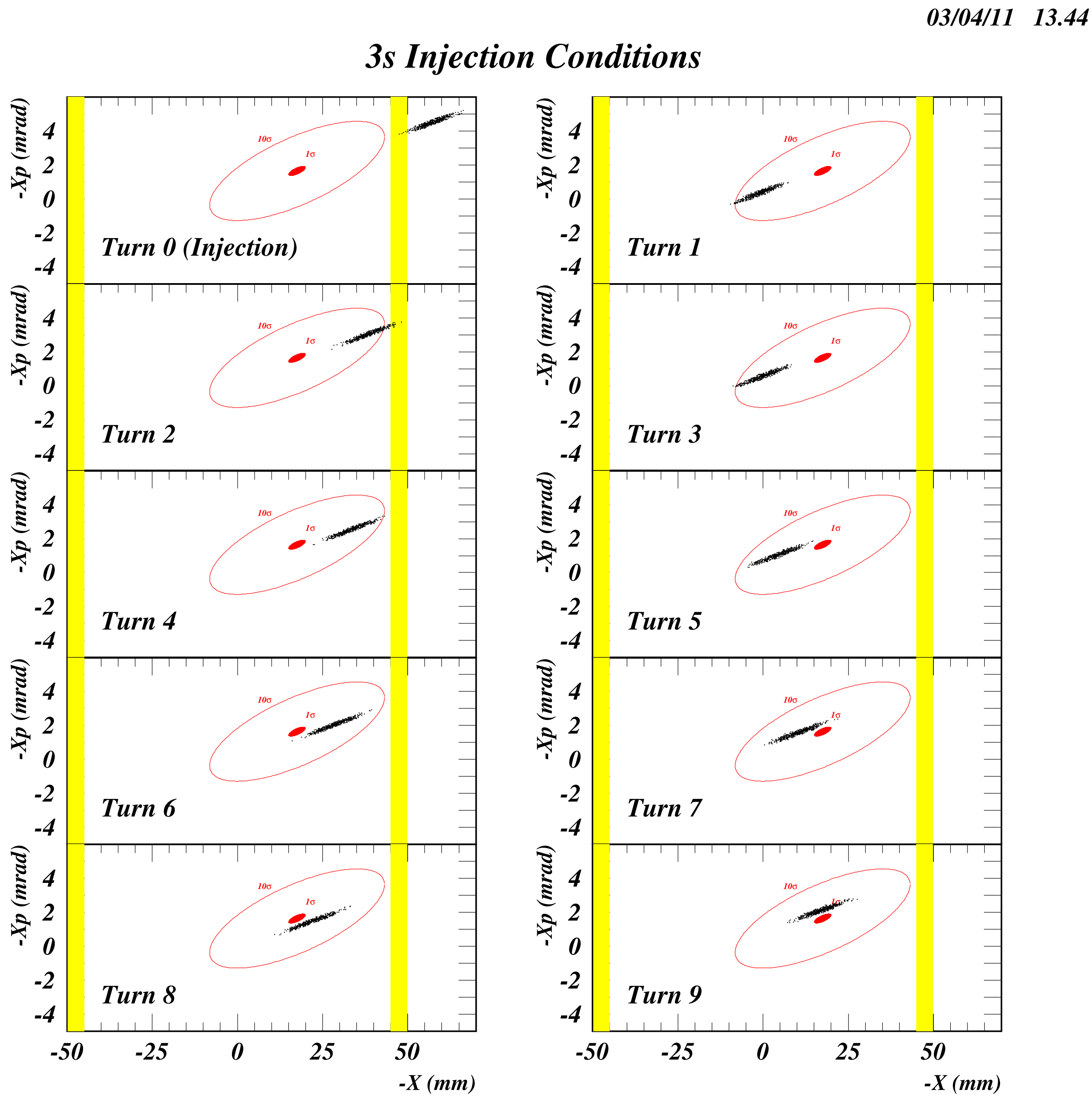


⇒ Edge effect again affects kick comparison at negative X values

⇒ Calculations agree that 7-pole behavior shows a kick in the opposite direction from the one at 2.1 T peak field

Injection Tracking in 3S Conditions

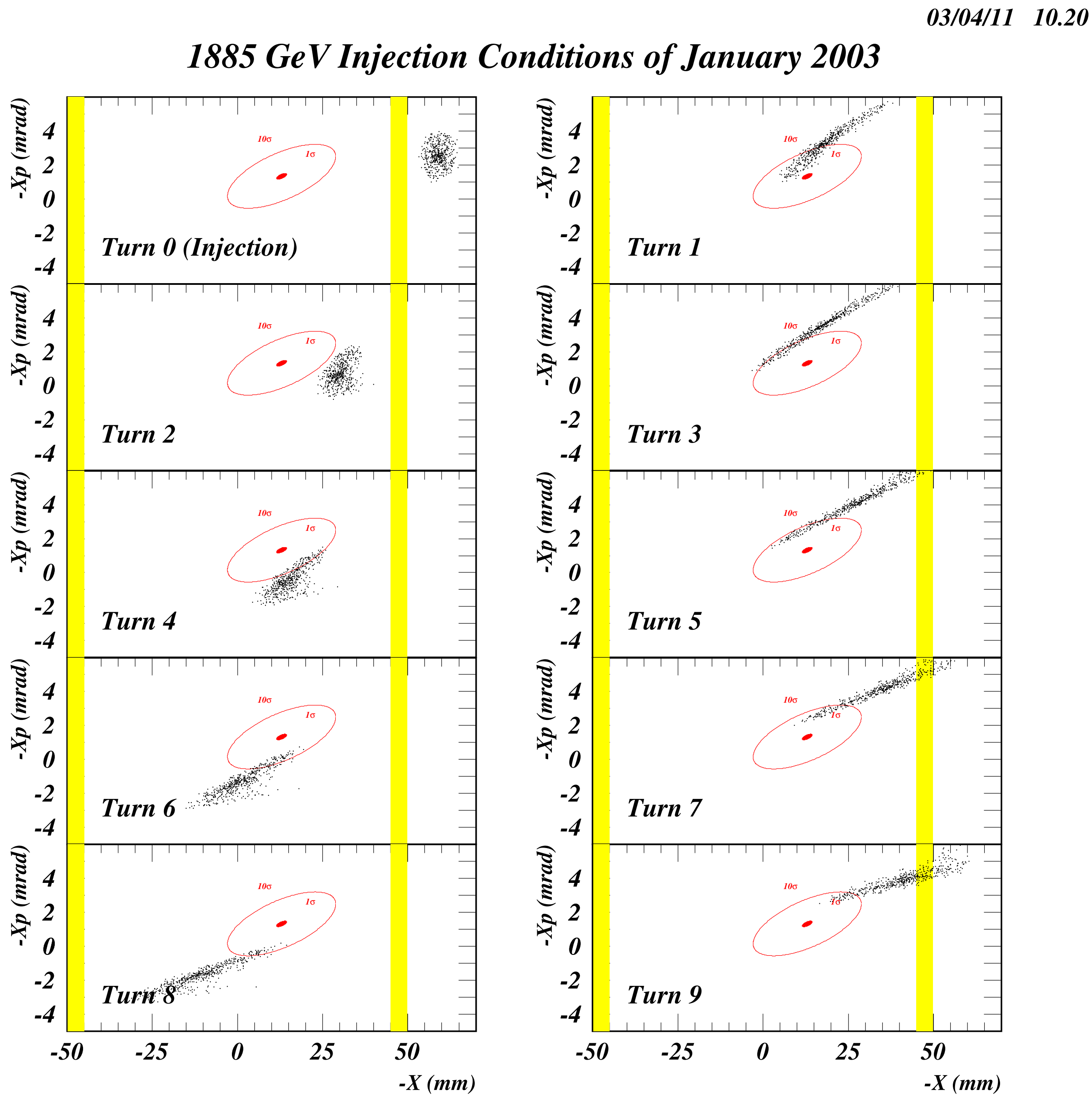
Horizontal phase space distribution of injected electron beam at Q34E



⇒ Validated by Stu Henderson during years of stable operation

Injection Tracking in 1885 MeV Conditions

Horizontal phase space distribution of injected electron beam at Q34E



⇒ Experience showed injection possible only with extensive tuning by experts