# Proton Driver Space-Charge Study with ORBIT Simulation

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Booster Study Meeting

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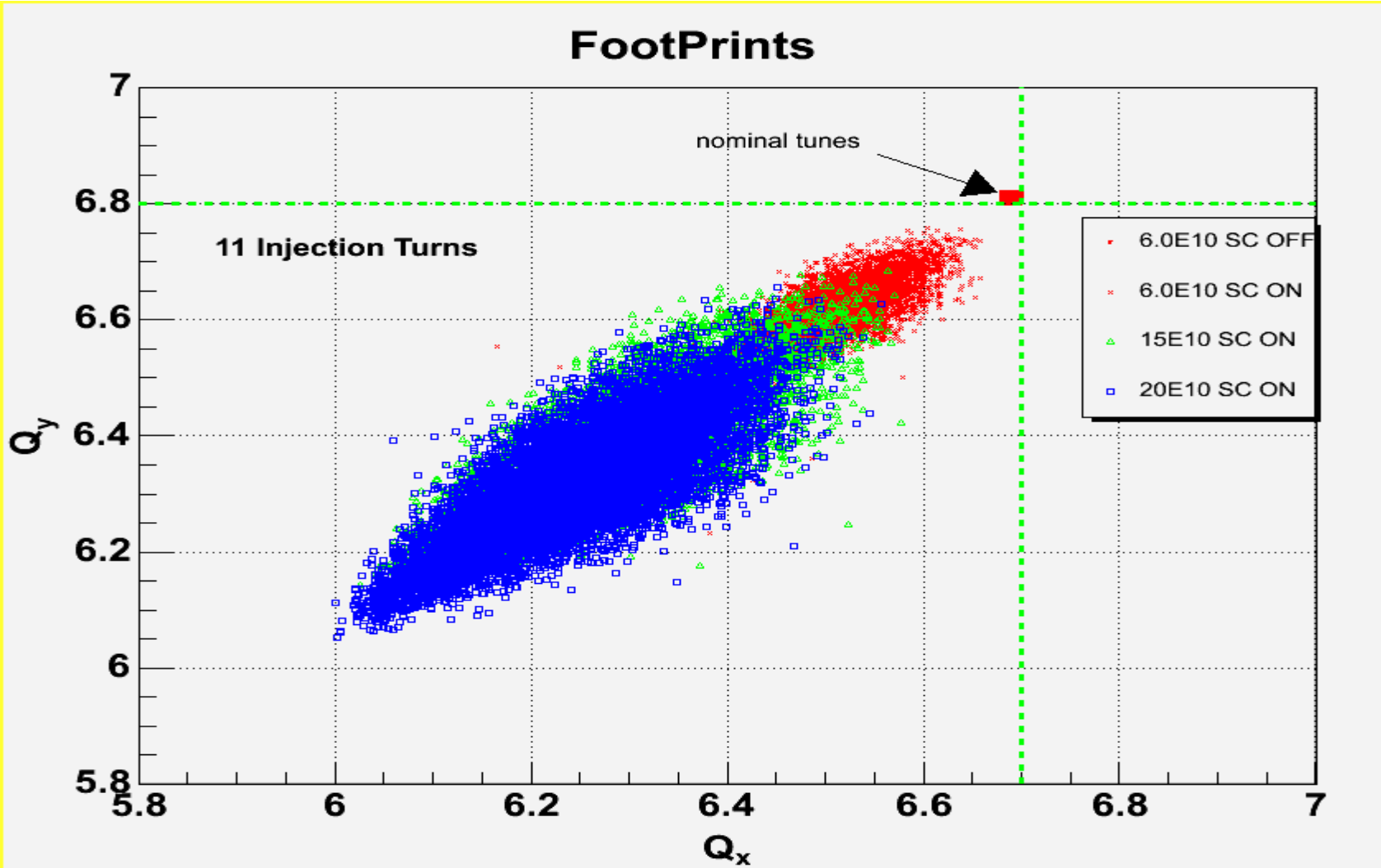
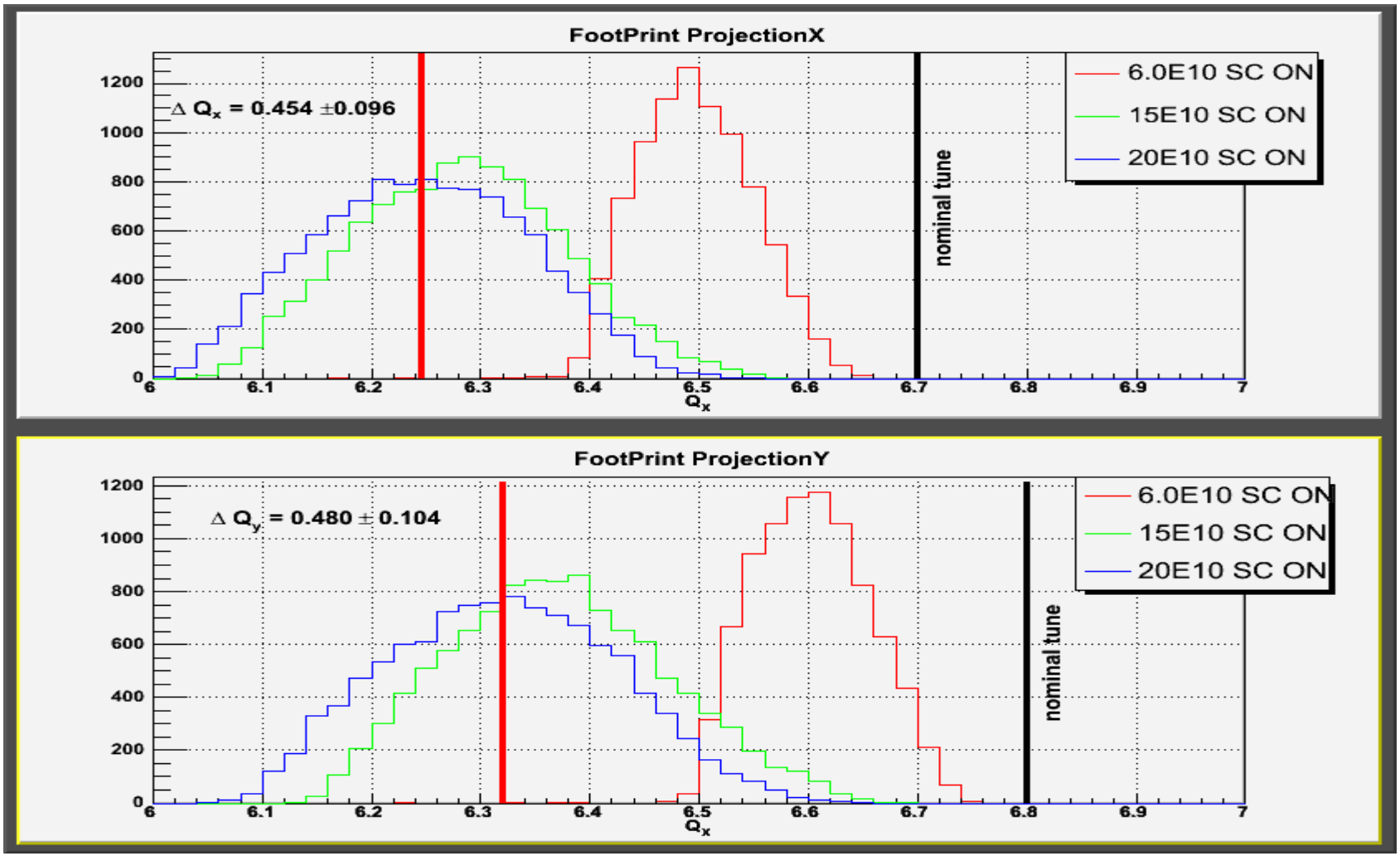
# Parameters in ORBIT Simulation

- Input Lattice: Booster Lattice V.1.1
- Total Intensity: 6E10 ~ 80E10
- 11 injection turns
- Macroparticles / Turn = 10K
- Max. No. of Injected Macros = 110K
- 2D (Transverse) + 1D (Longitudinal) Space Charge Effects
- RF Node Off
- Bump Node Off
- Injection Distribution: Gaussian distribution
- No tails in horizontal and vertical beam distribution

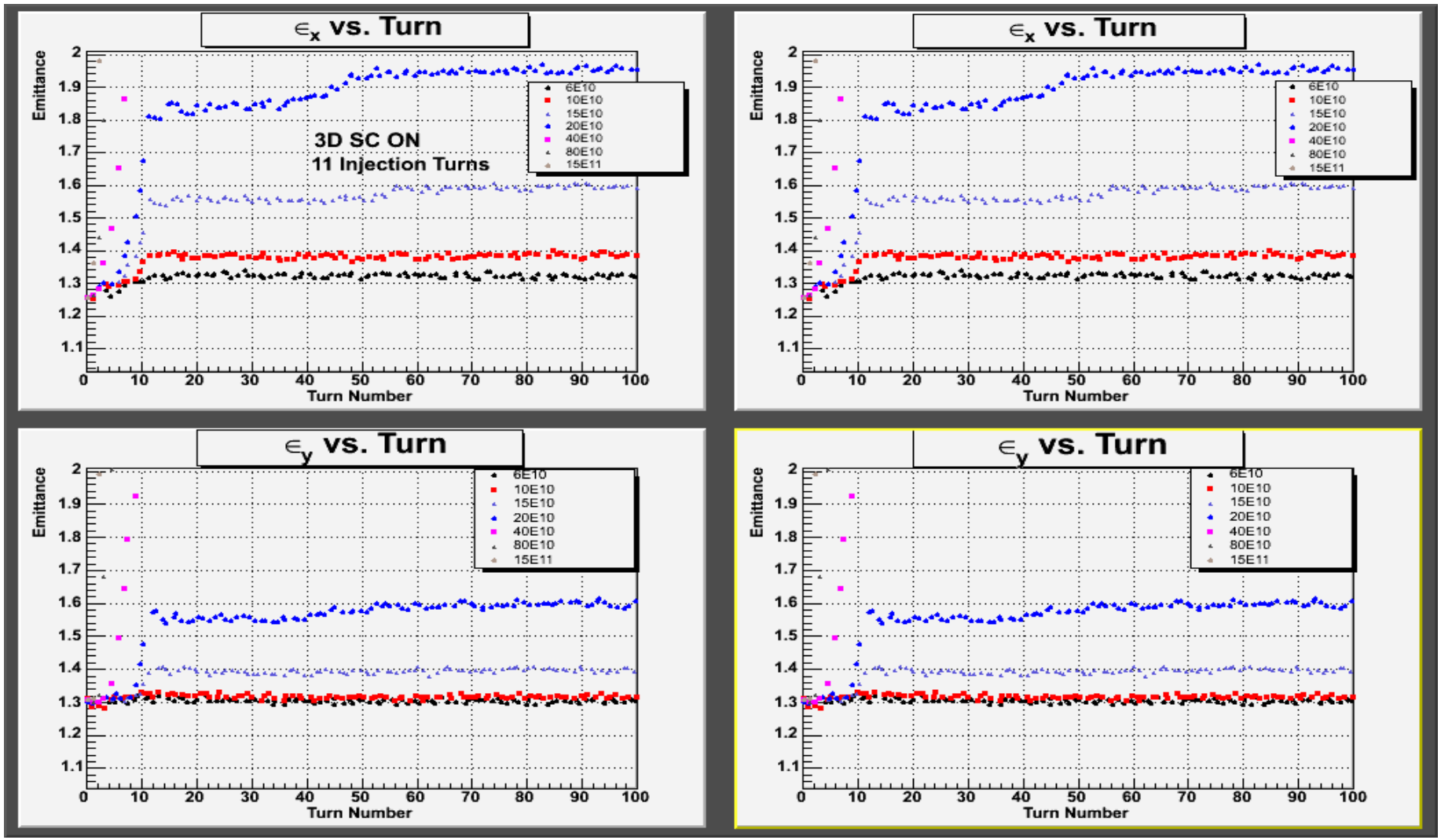
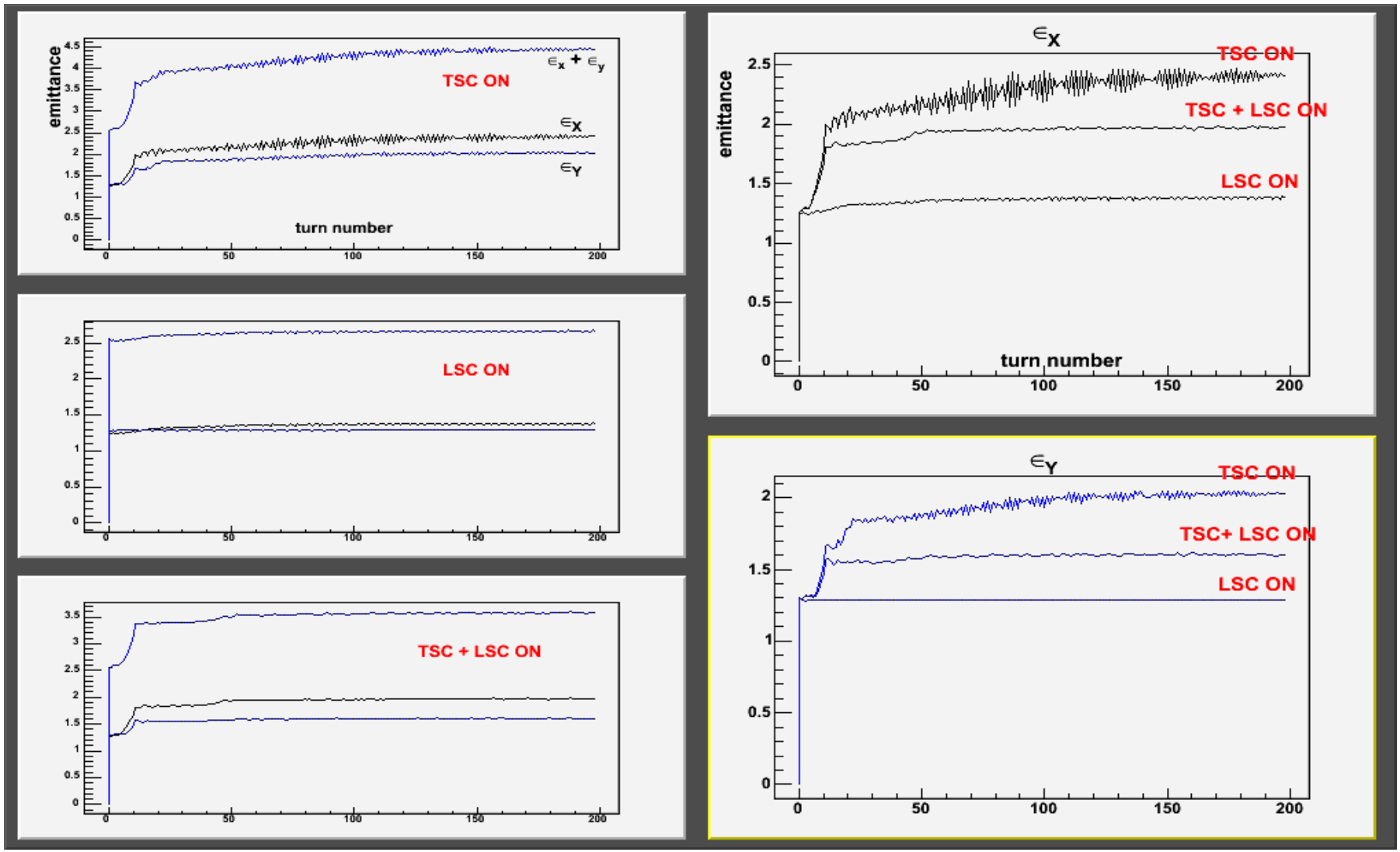
# Tune Shifts with Different Intensities



# FootPrint Projections onto X/Y



# Emittance Dilution / Emittance Growth



# Emittance Sum Check