STRUCT / K2 / FLUKA

Code Comparison

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Comparison Details

- ◆ Simple collimator
  - ■ 50 cm cu
- ◆ 7 TeV pencil beam
  - ■ X = 10E-6, x'=0 (in K2, STRUCT y, y'!)
- ◆ Observable
  - ■ Δx, Δy at the end of the jaw
  - ■ $\Delta \delta x$, $\Delta \delta y$ (px, py) at the end of the jaw
  - ■ (E0-E)/E0 (delta) at the end of the jaw
- ◆ Statistics for ~200.000 primary particles
  - ■ Limitation by the total size of the output files

Run Details

- First simulation run
  - Beam particles
    - Offset o.k.
    - Angular distribution o.k.
    - Delta n.o.k.
      - -> Fluka regards single diffractive scattering as a change in the particle generation
- Second simulation run
  - Protons
    - Energy cut necessary (~6300 GeV)

Additional "Features"

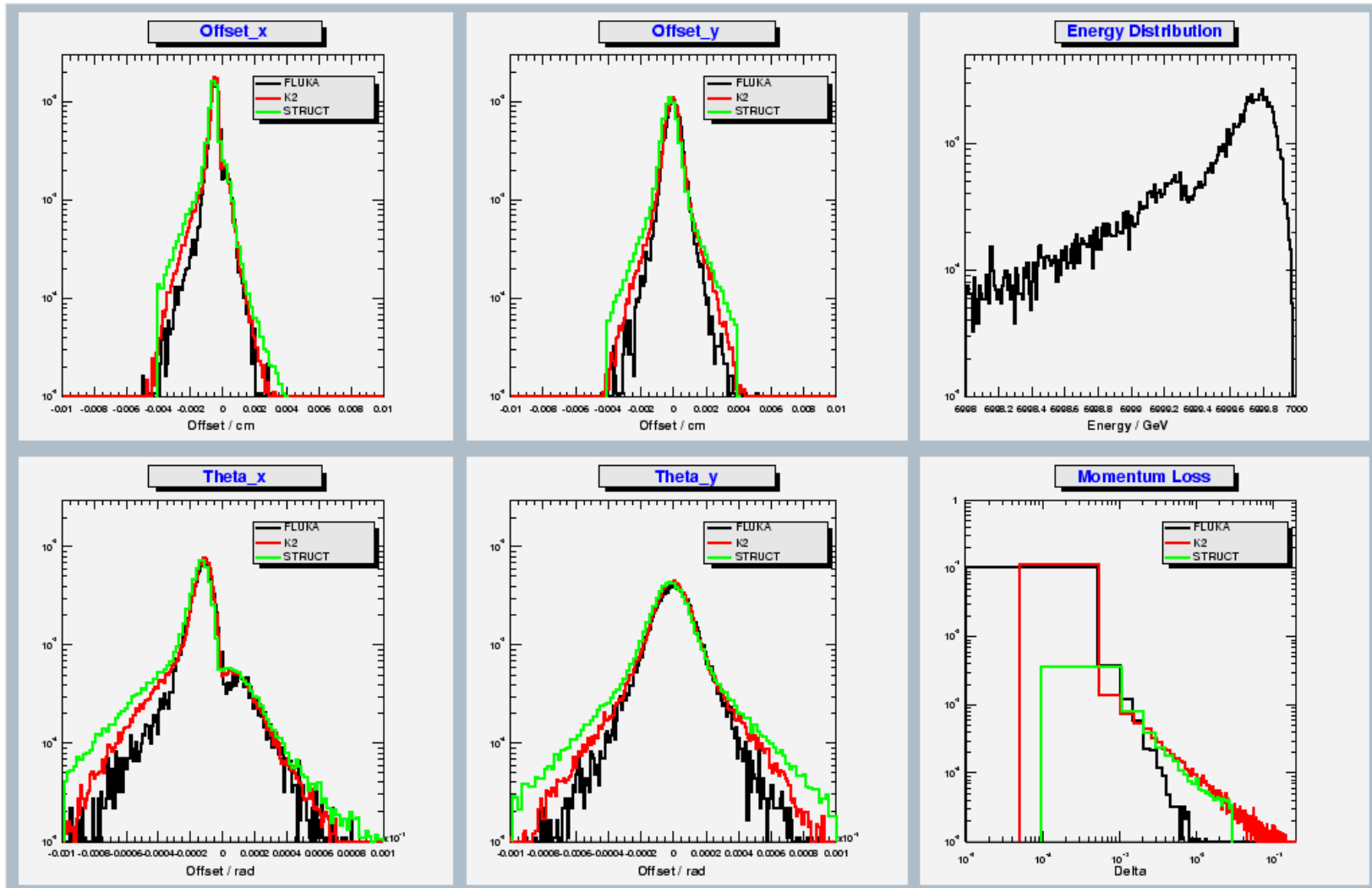◆ Additional source files for:

- e-
- μ
- π

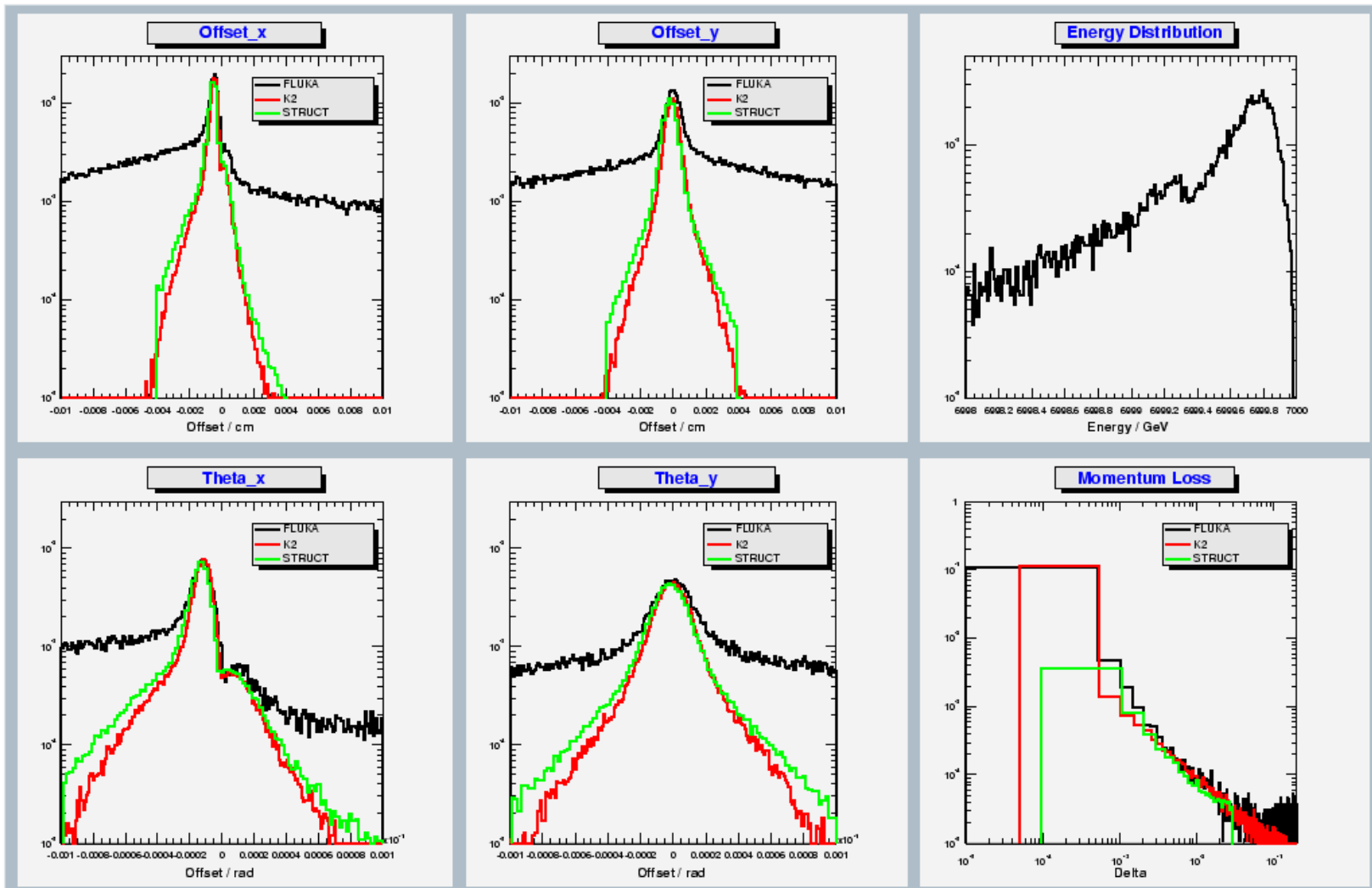} What kind of distributions should be generated/analysed for future studies?

◆ "Bump" in the energy distribution

- Combined effect of those particles (p), which leave the jaw before the end of the collimator, and those, which remain inside.
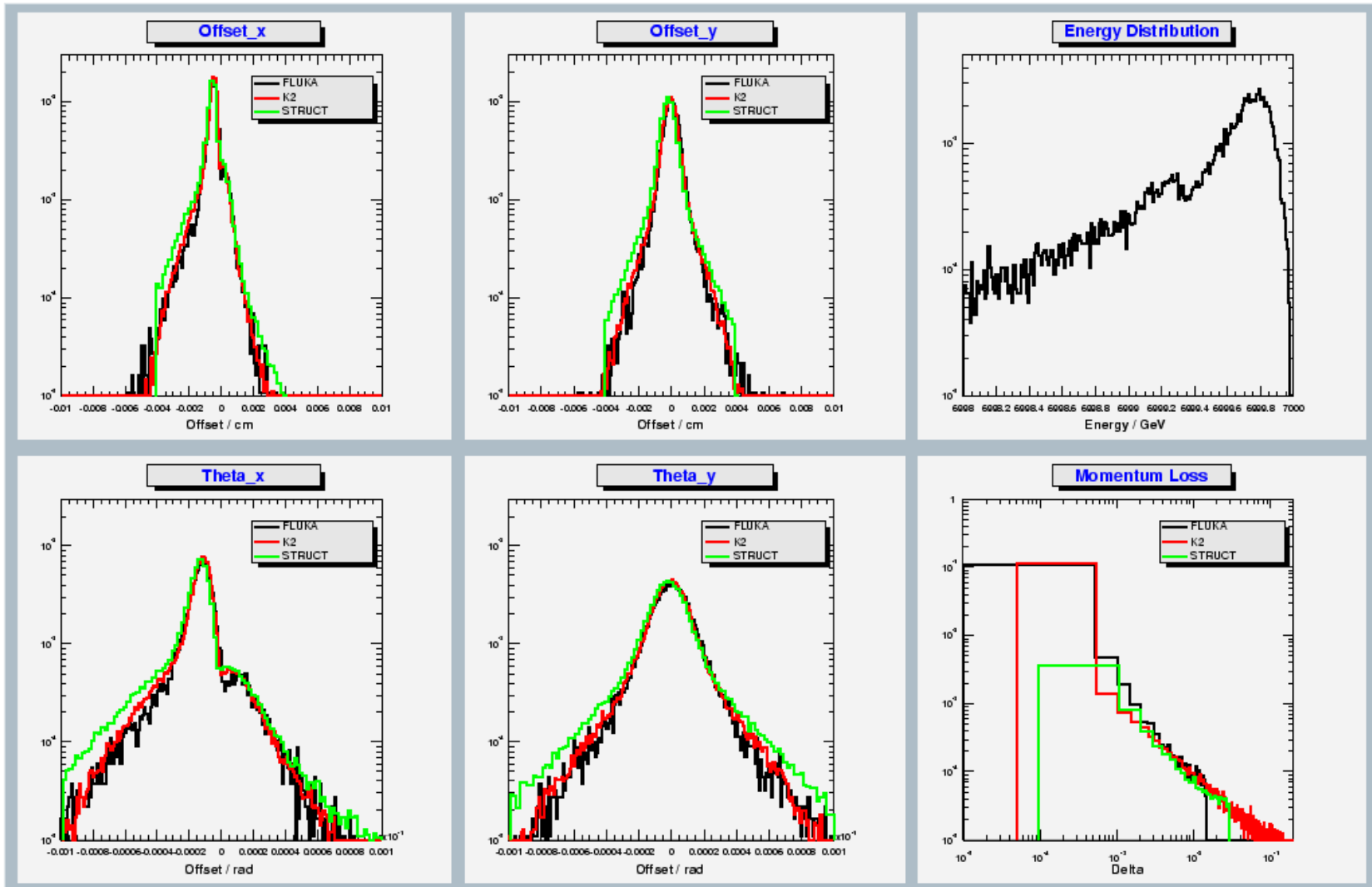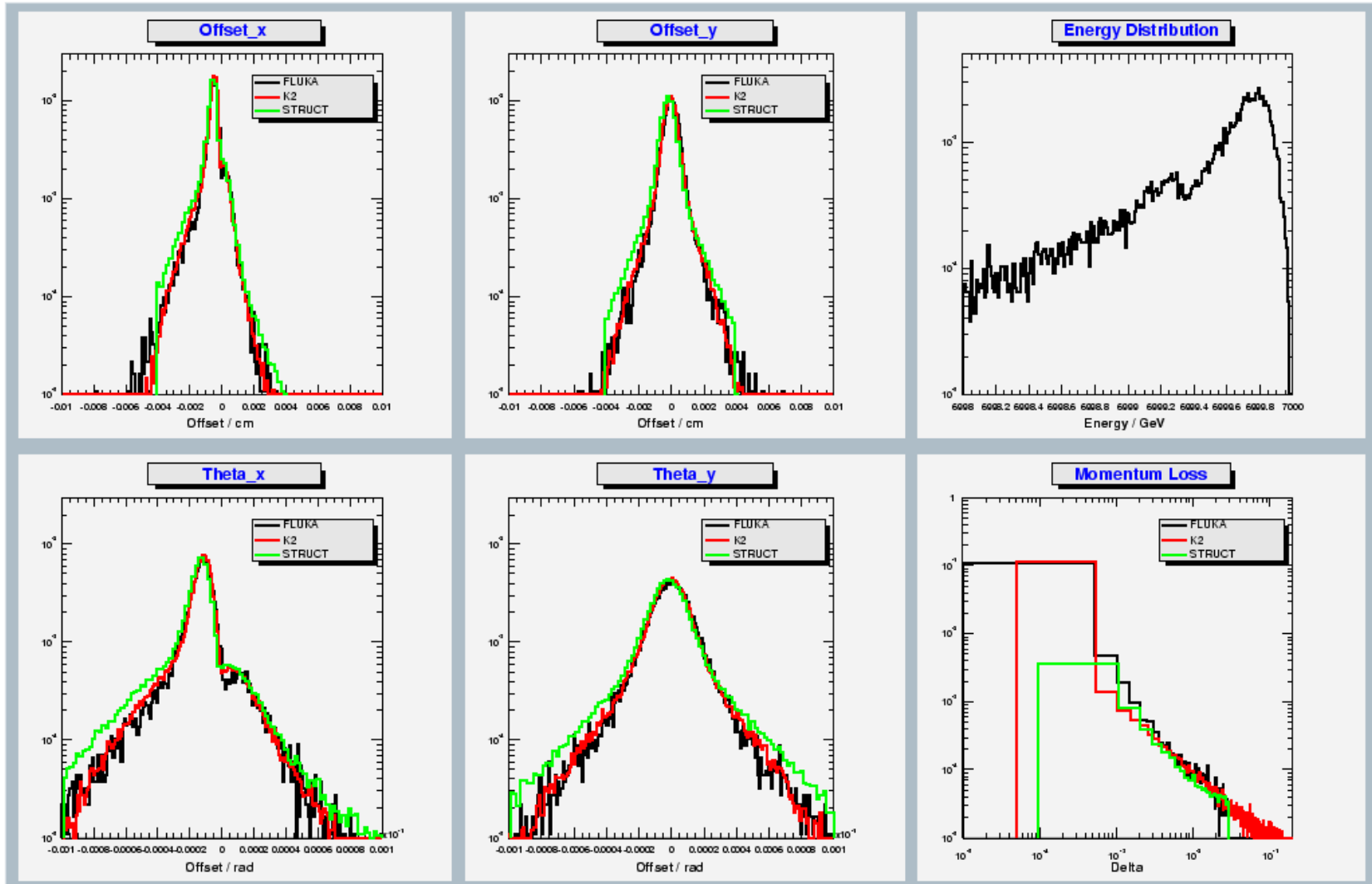
Beam particles – No Cut

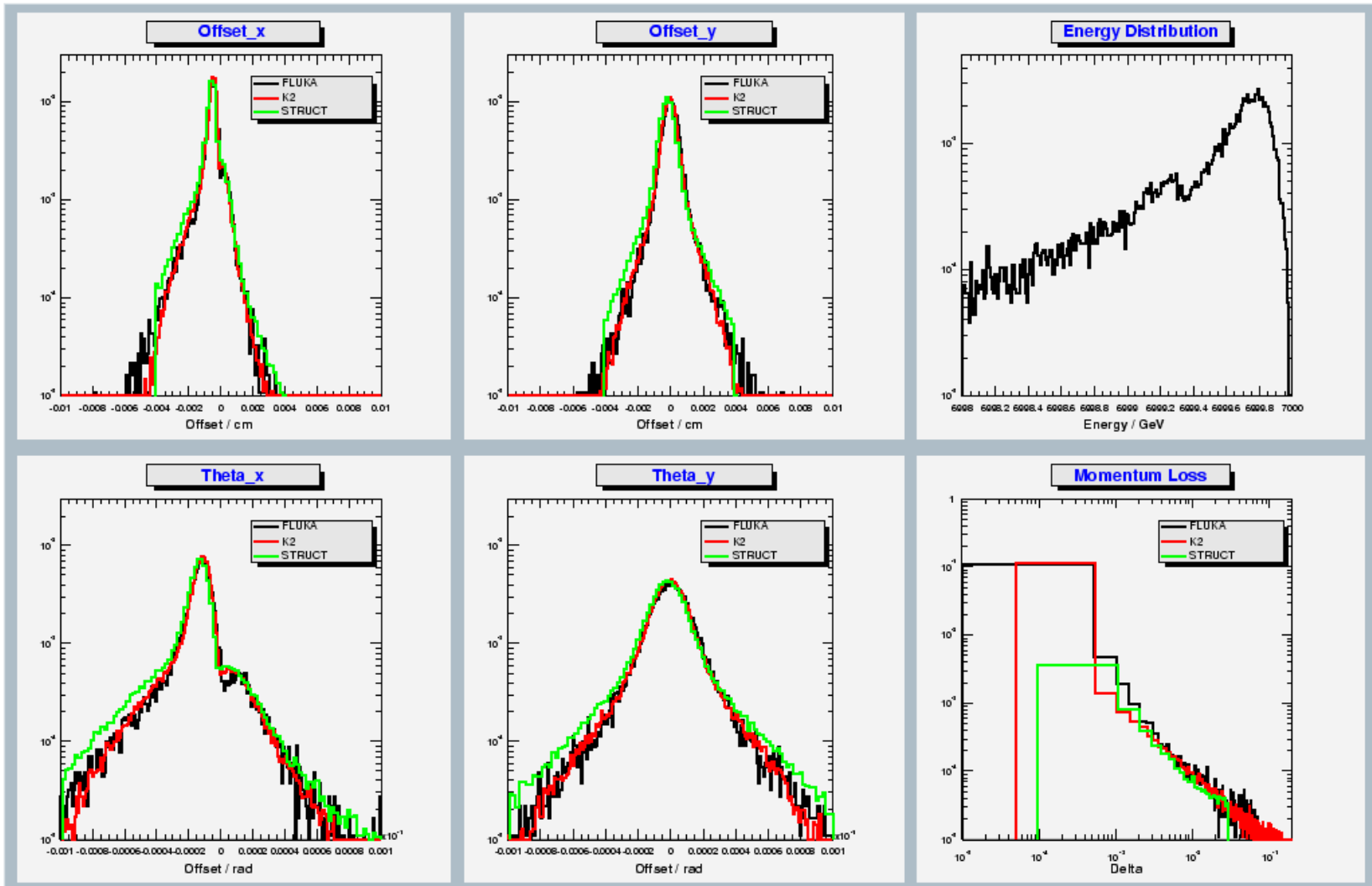# Protons – No Cut

Protons – Cut in Energy: 6900 GeV
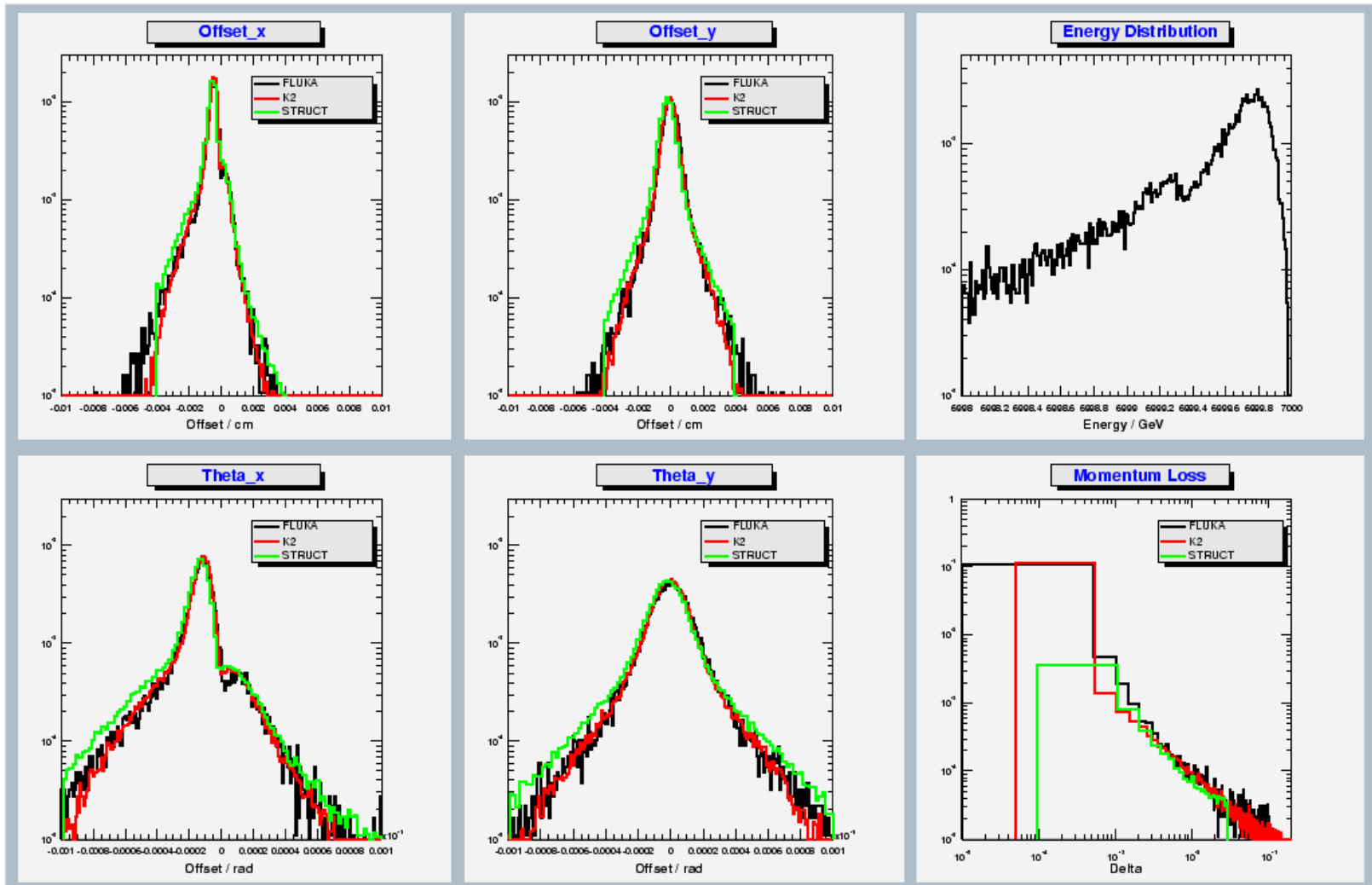
Protons – Cut in Energy: 6800 GeV

Protons – Cut in Energy: 6500 GeV

Protons – Cut in Energy: 6300 GeV

Protons – Cut in Energy: 6000 GeV