Fast Rotation 2016

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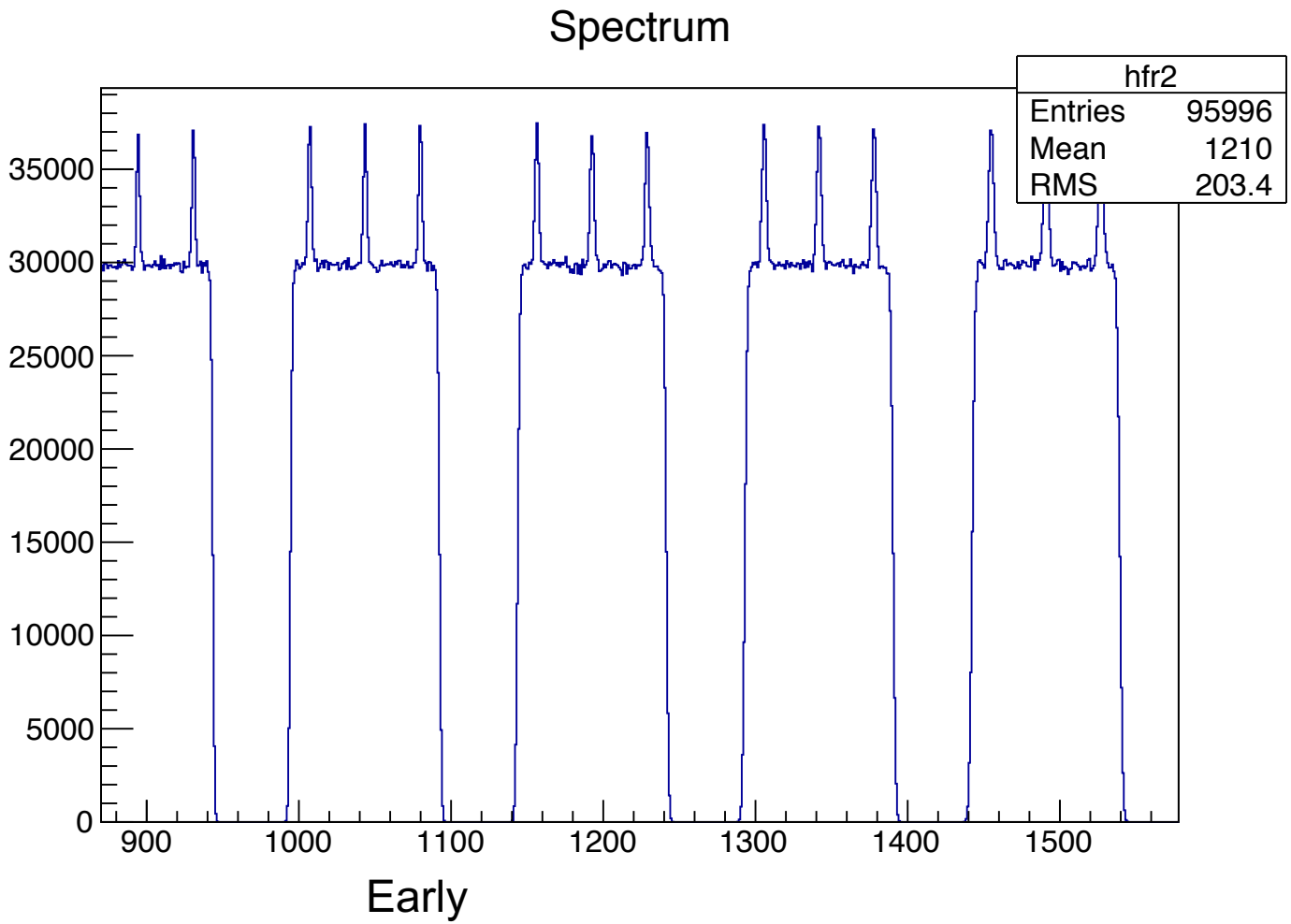
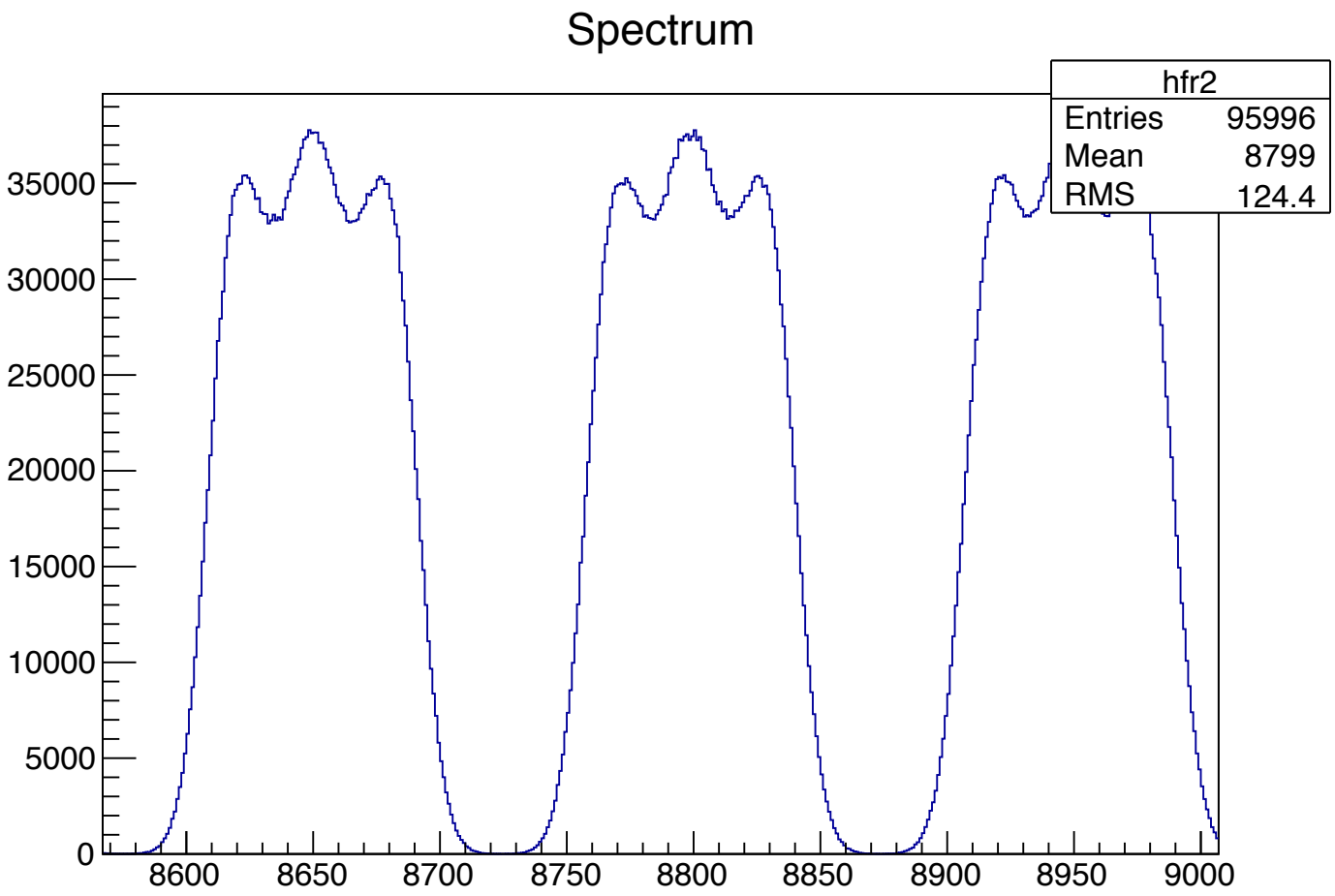
Short Term plan

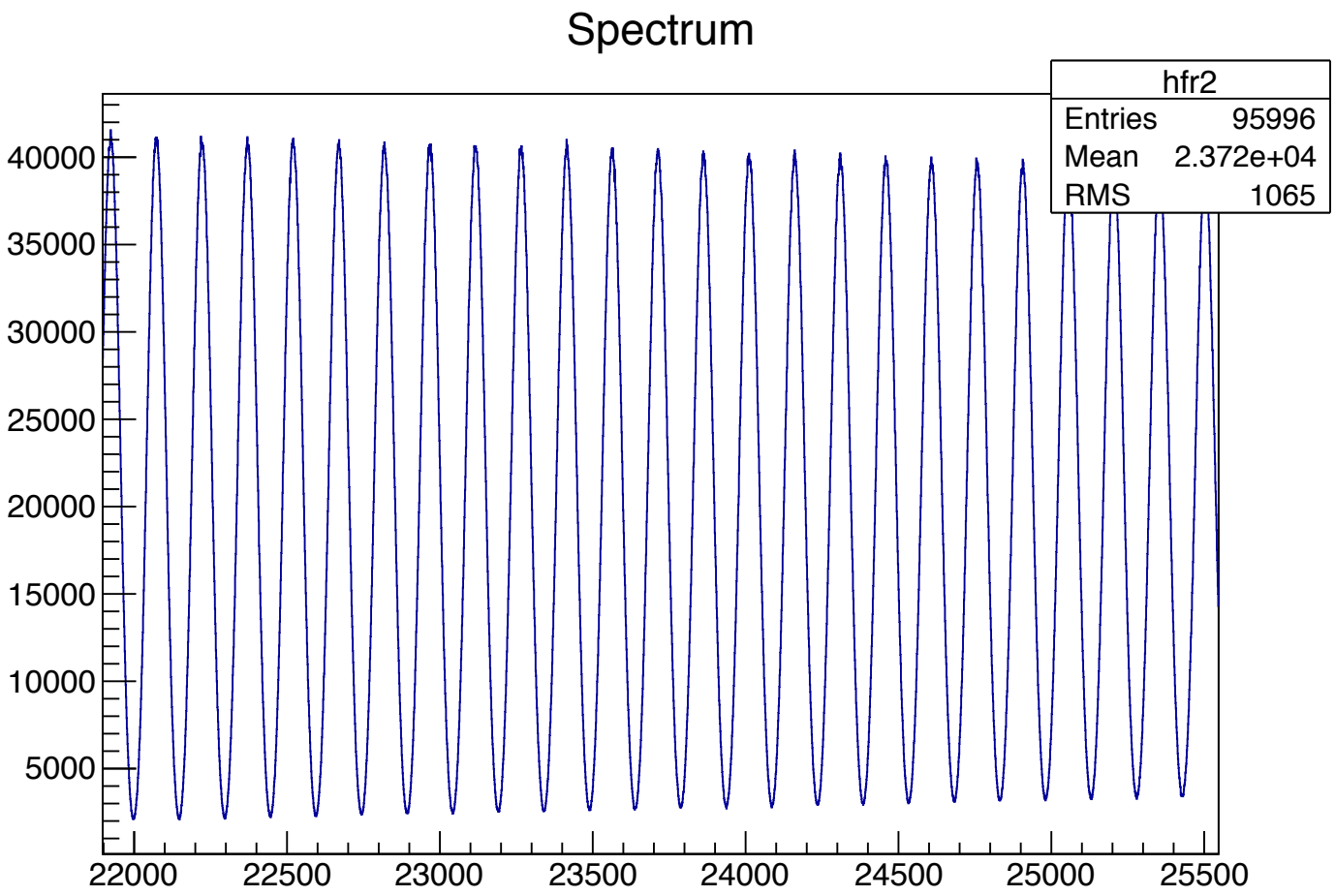
- E821 generalization of CERN III fast rotation code assumed that every time segment of injection pulse had the same momentum profile
- Nothing in the basic methodology requires a homogeneous pulse
- Instead of solving for a single frequency spectrum, we solve for n of them, where we have divided the injection pulse into n time segments
- Test method on fast Monte Carlo data

Create a (rather strange looking) Time Spectrum

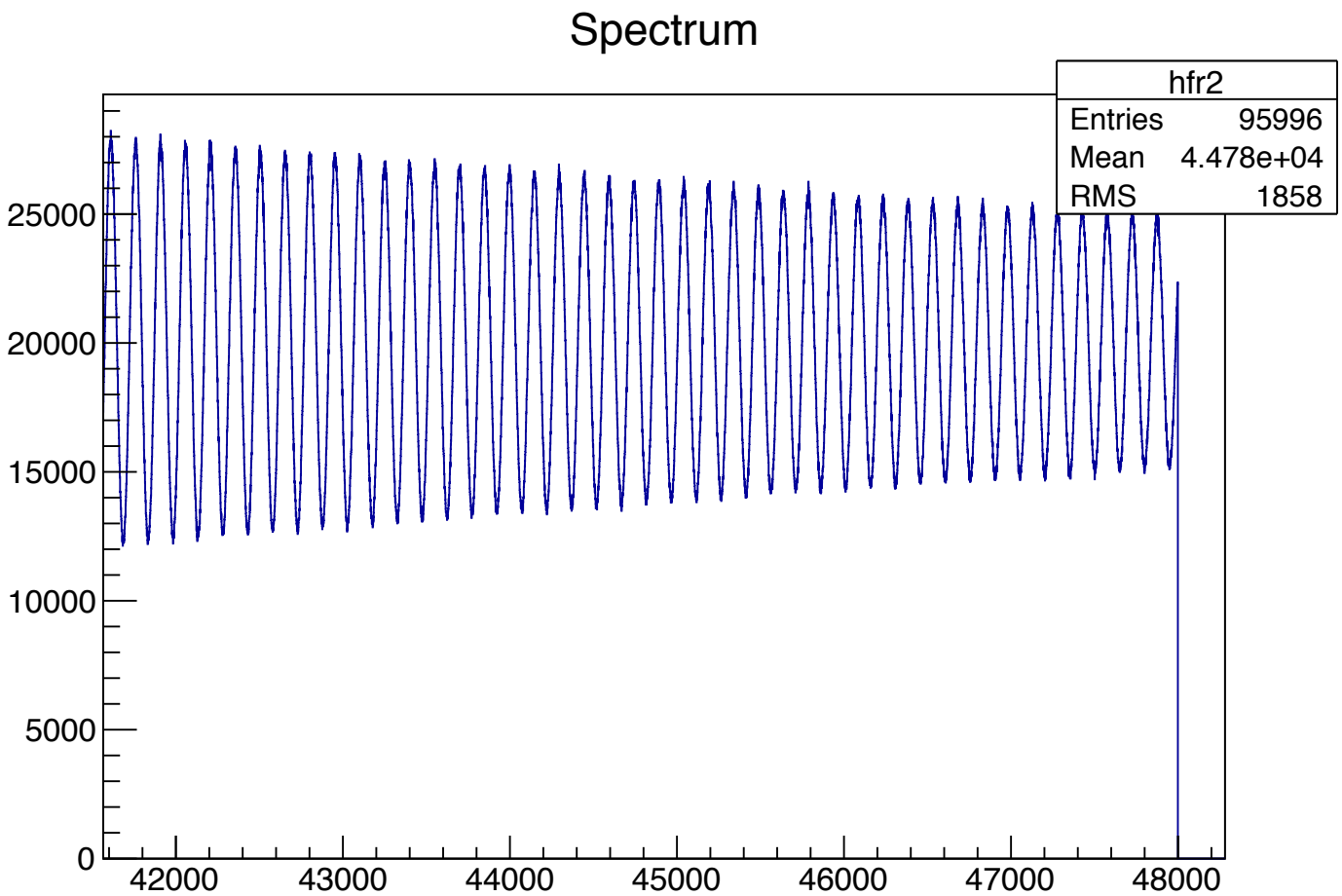



Spectrum
hfr2
Entries 95996
Mean 8799
RMS 124.4
35000
30000
25000
20000
15000
10000
5000
0
8600
8650
8700
8750
8800
8850
8900
8950
9000

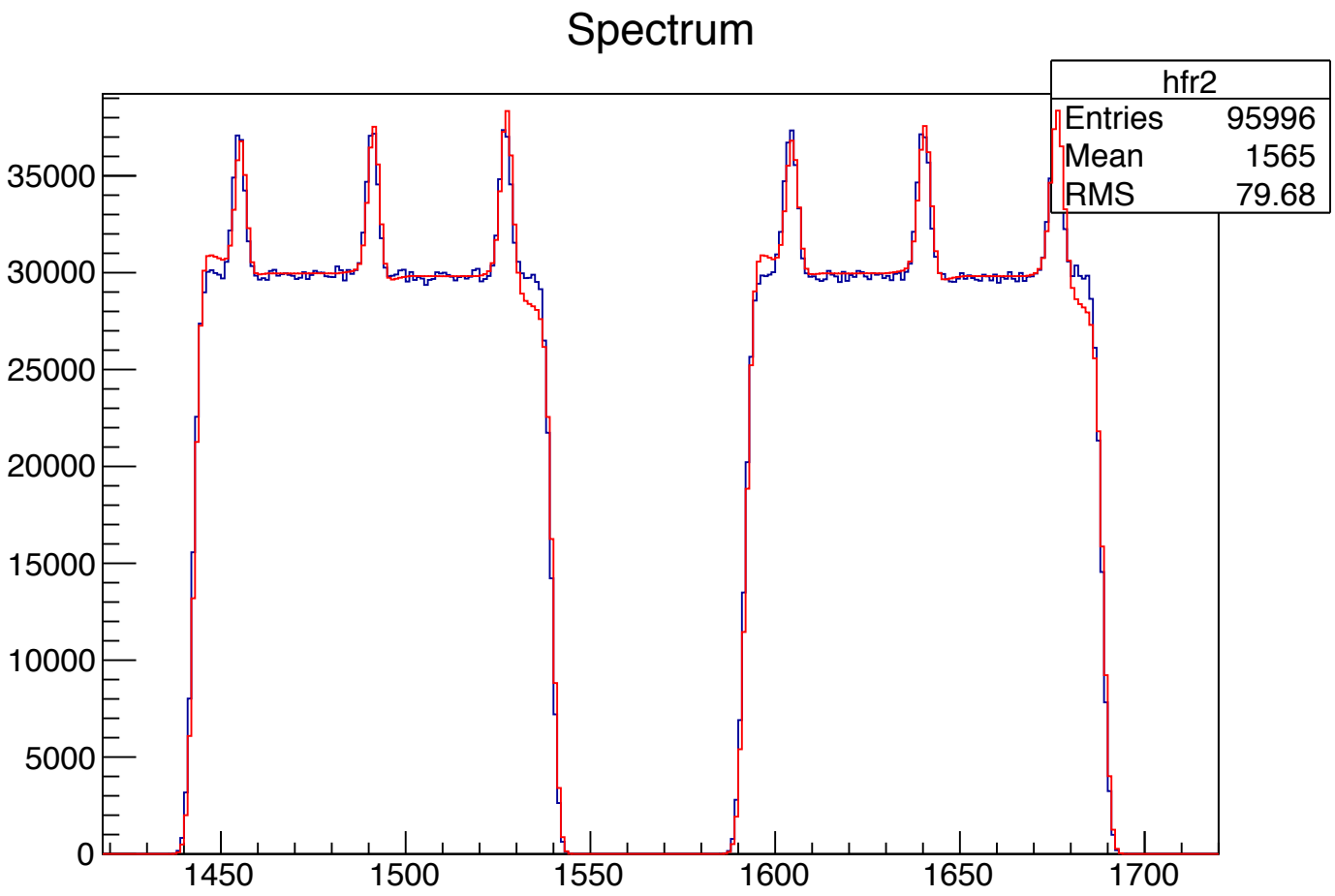
Later


Spectrum
hfr2
Entries 95996
Mean 2.372e+04
RMS 1065
40000
35000
30000
25000
20000
15000
10000
5000
22000
22500
23000
23500
24000
24500
25000
25500

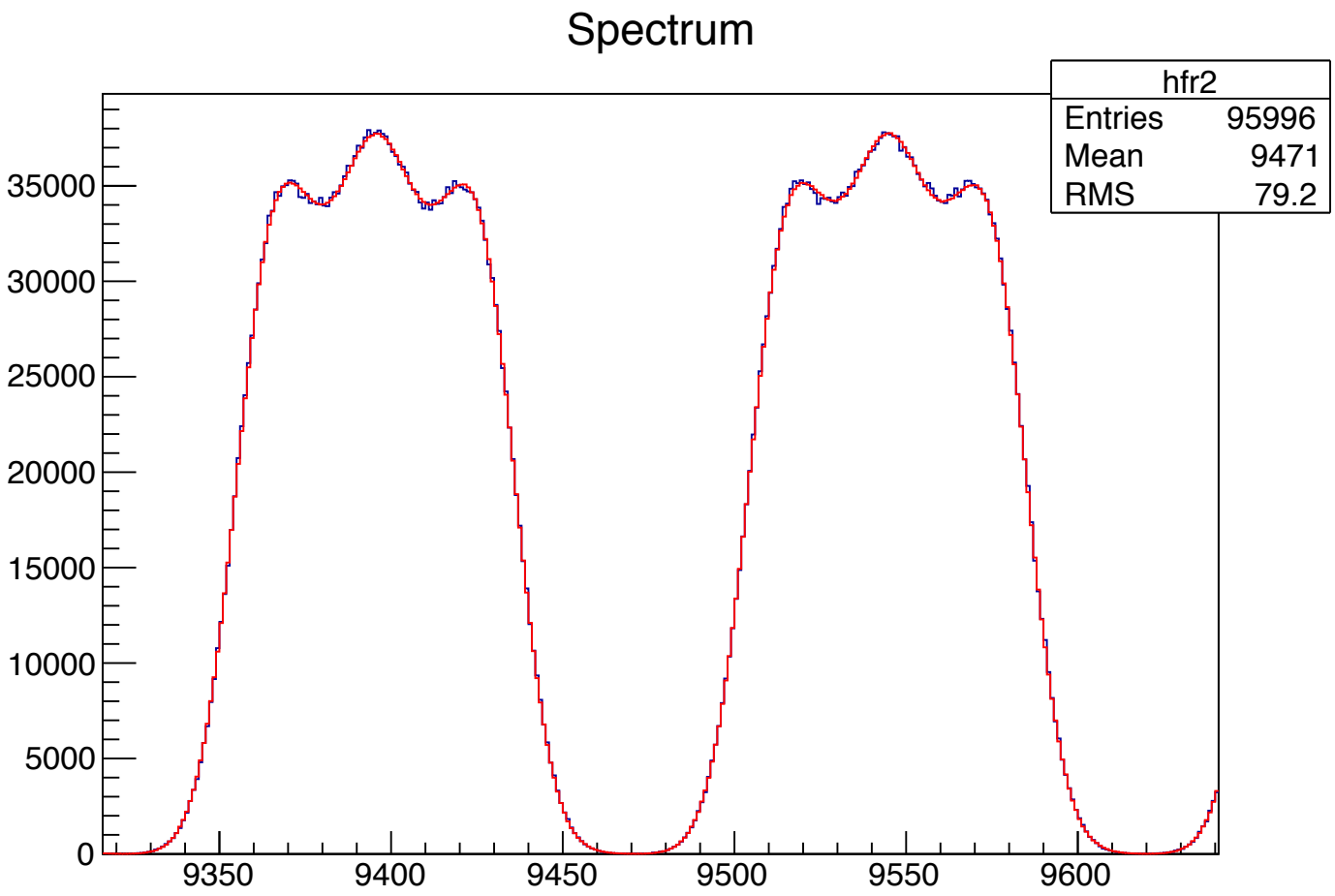
Still later



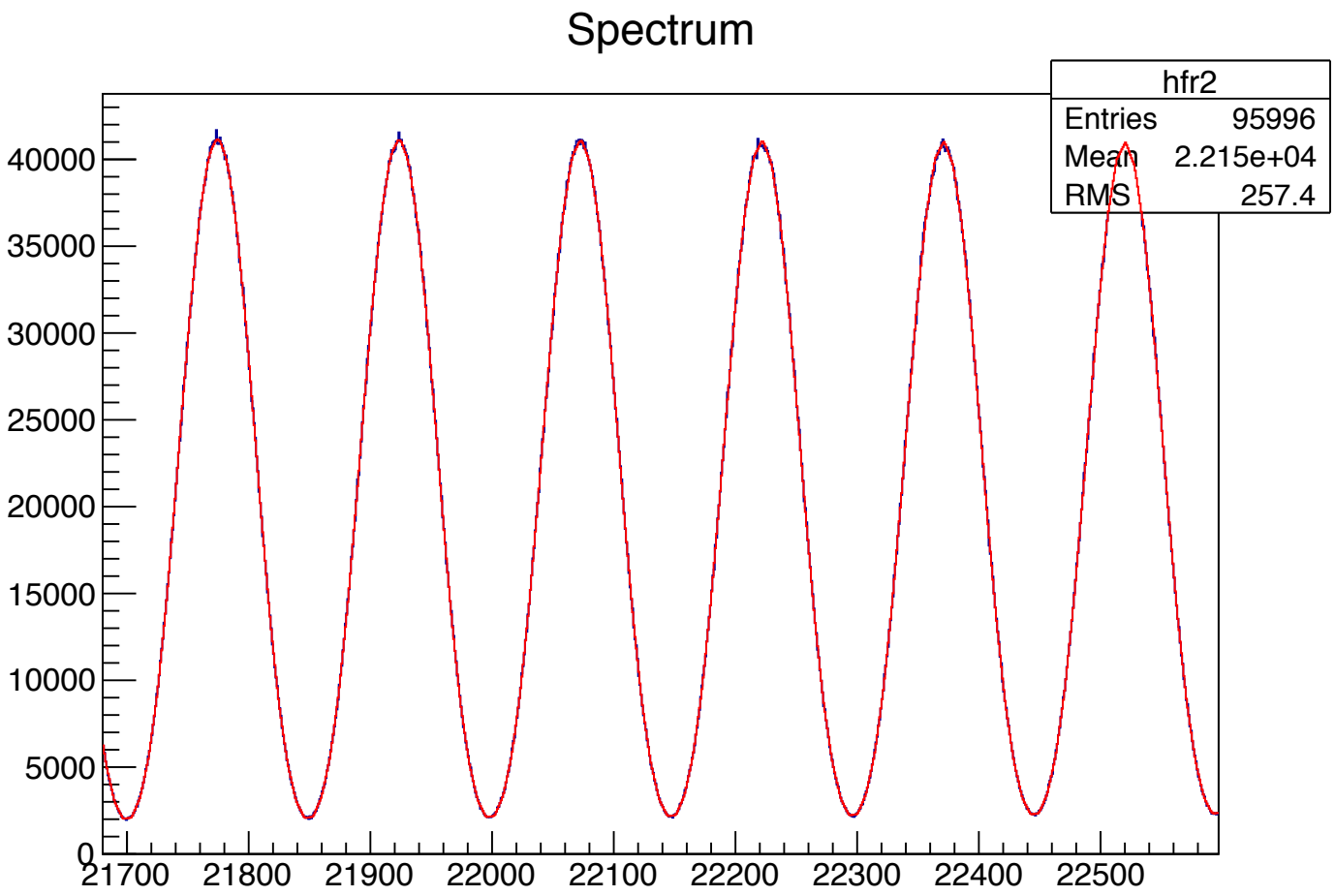
End of Measurement Period



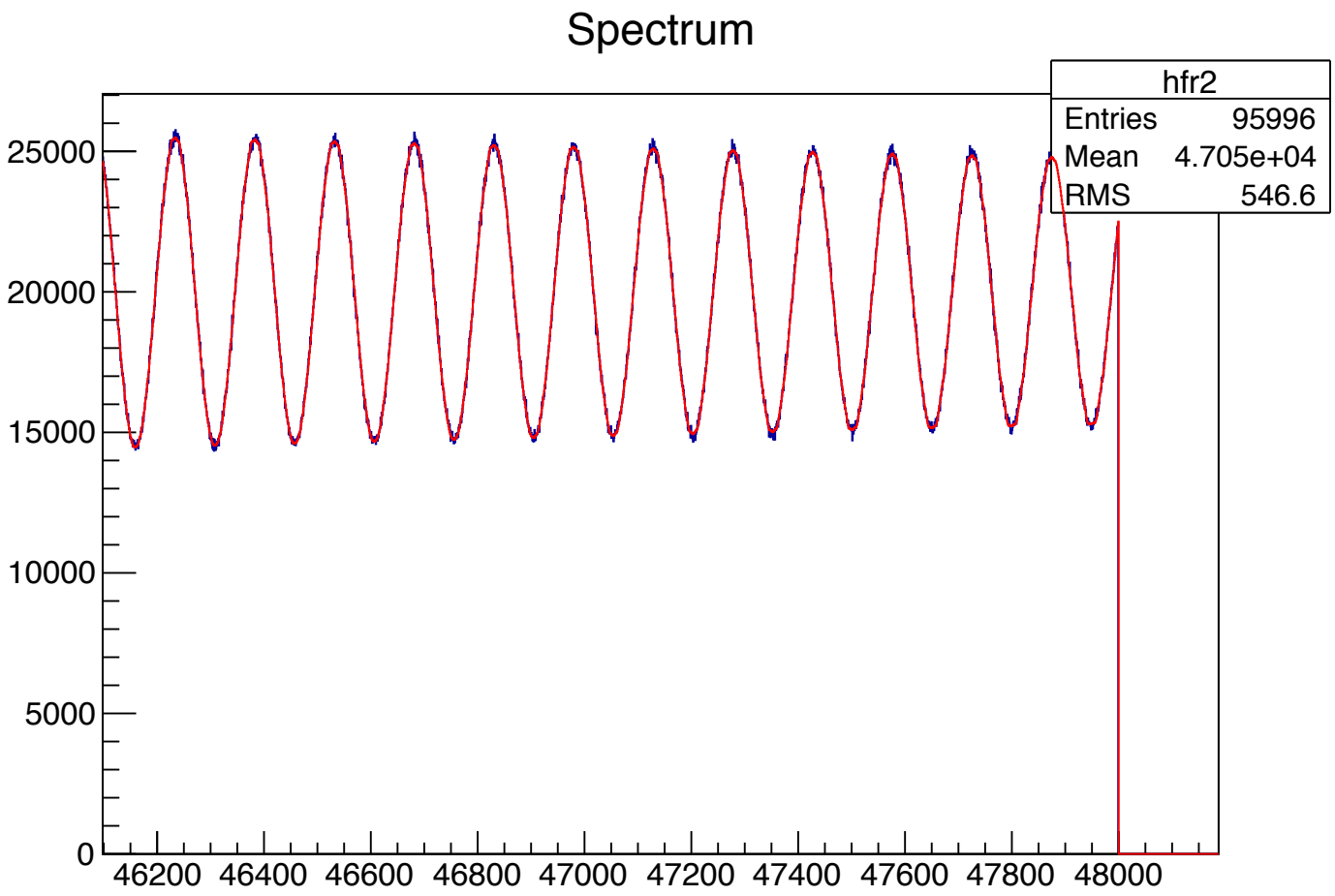
Early with Fit



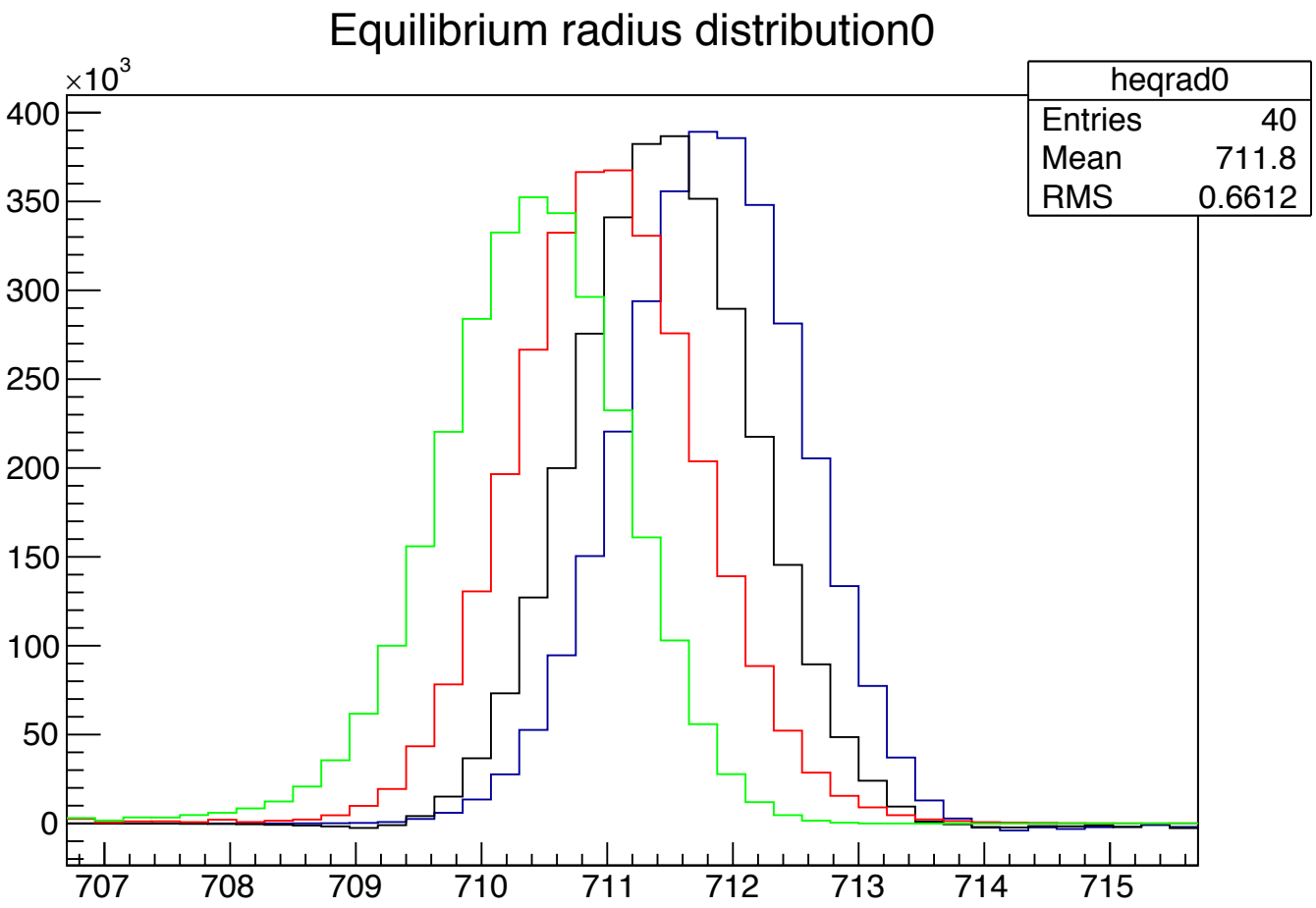
Middle Time with Fit



Later Time with Fit



Very Late Time with Fit



Yes – the correct answer was 4 Gaussians, with different central momenta

Outlook

- Results are promising but hardly convincing – Equilibrium radius distributions aren't in quite the right place!
- Get occasional small negative values
- Lots of free parameters – numerical instability (can be regulated)
- Code has hardly been changed => Many improvements possible