

Measurement of resonance terms in the ATF DR

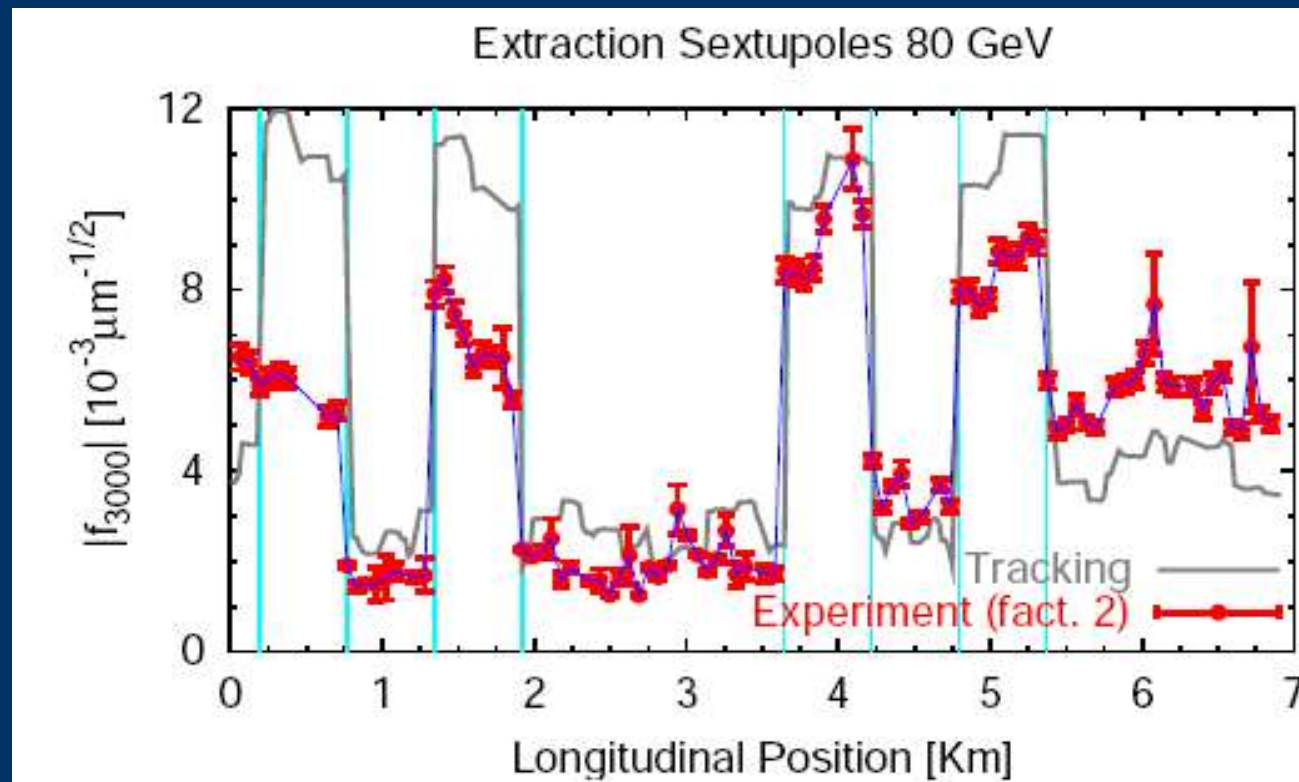
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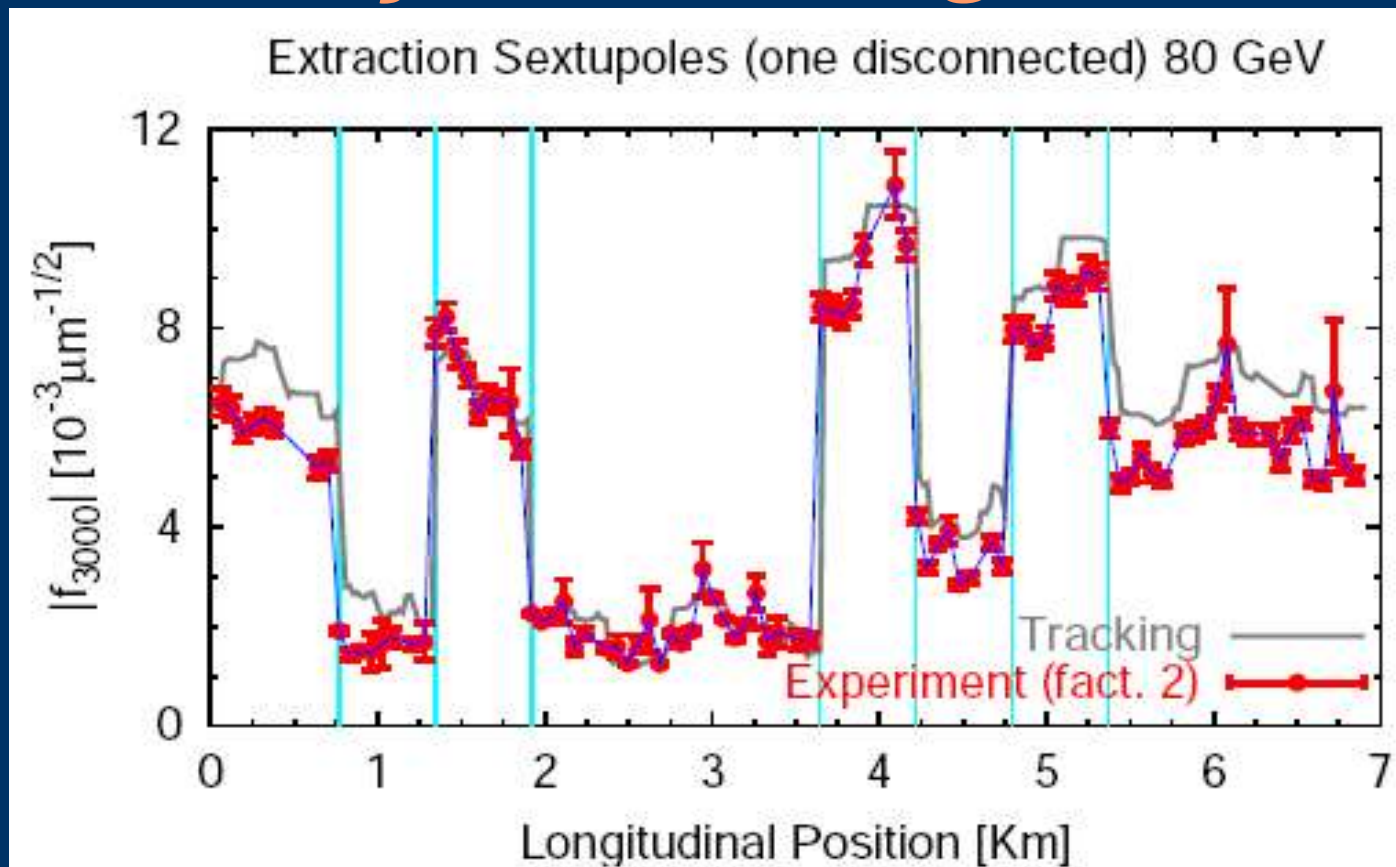
- Motivation (SPS experience)
 - Measurement of resonance terms in ATF DR
 - principle
 - (3,0) resonance
 - (1,2) resonance
 - Summary & plans
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Finding disconnected sextupoles in the SPS by measuring f_{3000}



Initial disagreement between model and measurement...

Finding disconnected sextupoles in the SPS by measuring f_{3000}



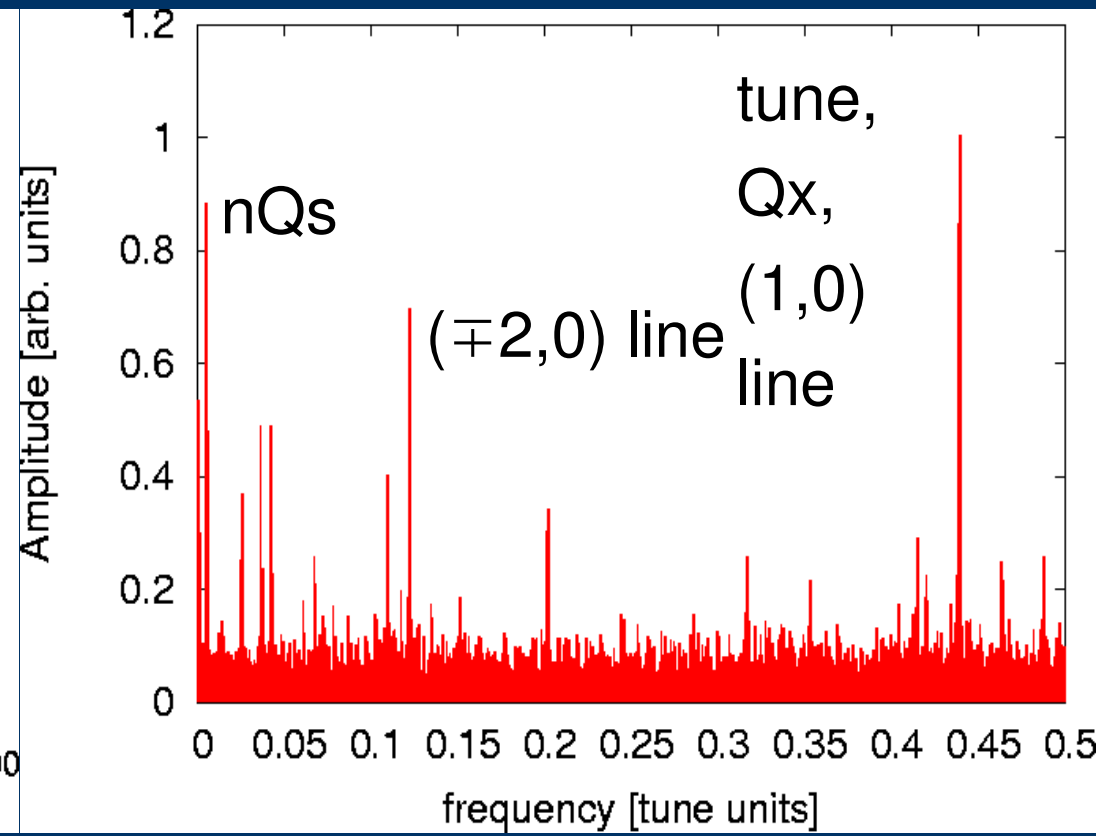
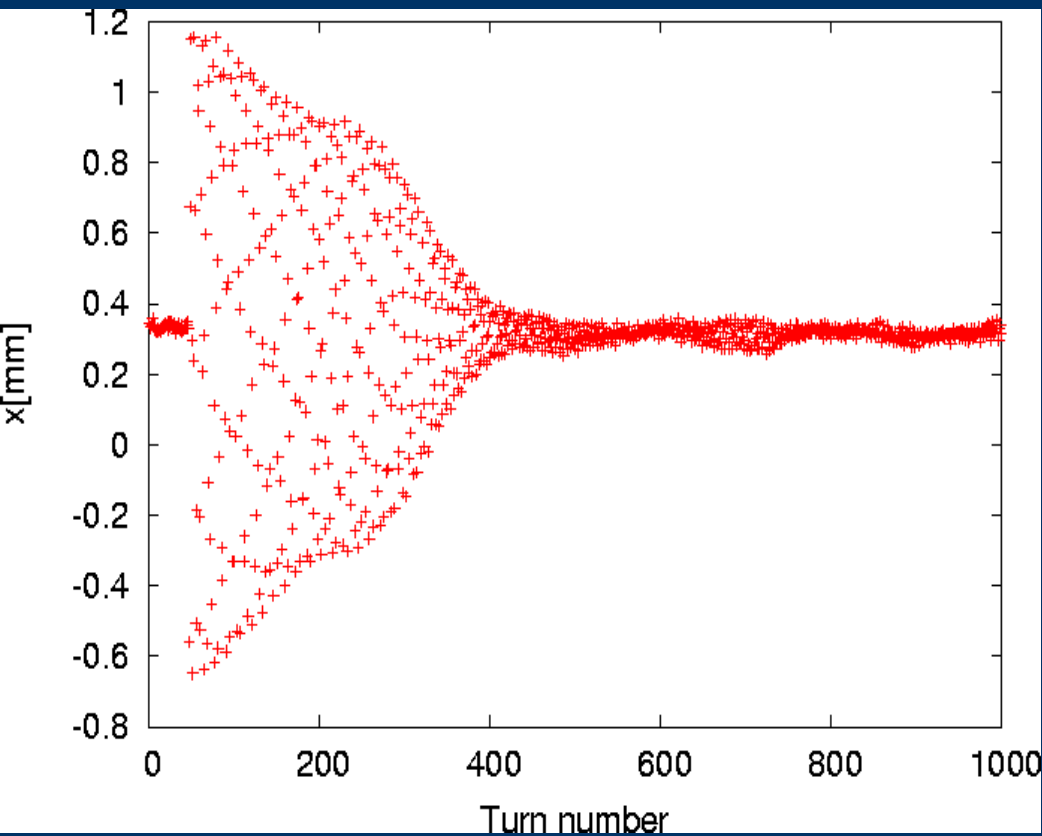
Perfect agreement with one sextupole disconnected in the model -> Hardware checks confirmed the problem !!

Measuring resonance terms in ATFDR

BPM turn-by-turn data

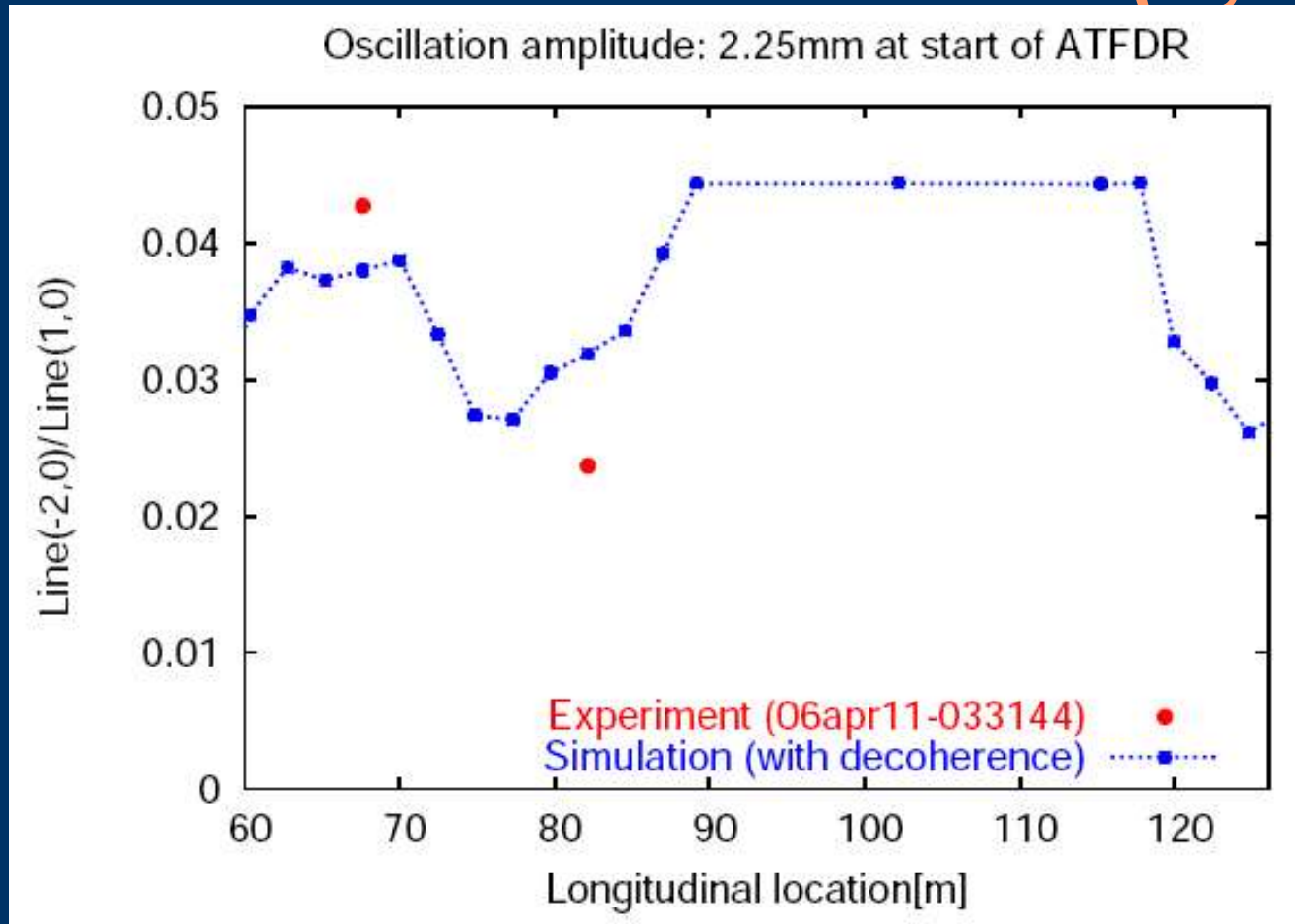


Fourier Spectrum



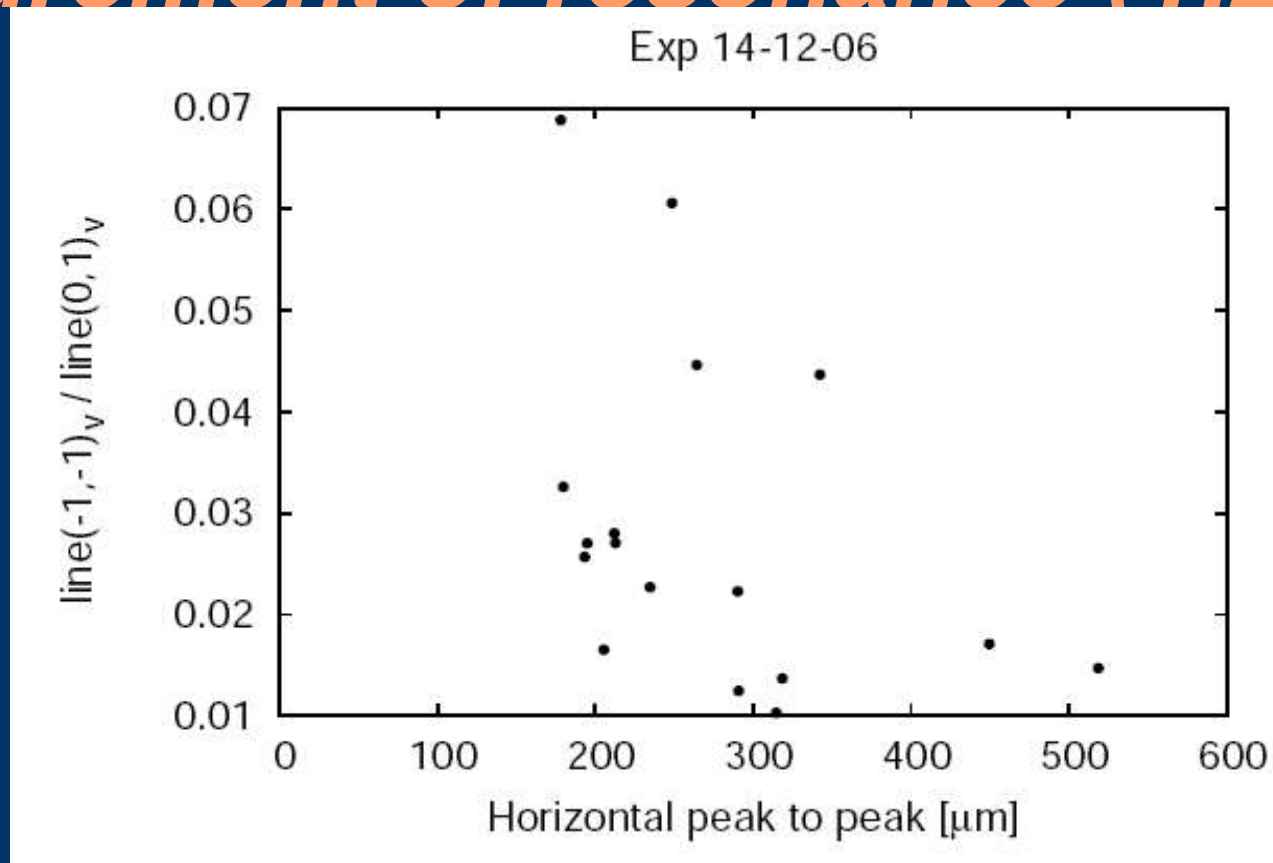
The spectral lines are related to resonance driving terms.
For example the line $(-2, 0)$ is related to the $(3, 0)$ resonance

Measurement of resonance (3,0)



First measurement of the resonance (3,0) at two BPMs in ATFDR. Reasonable agreement with model but lack of long. information.

Measurement of resonance (1,2)



Attempt to measure resonance (1,2) failed because of not enough kick strength in both planes (simultaneously). Vertical plane remains not probed.

Summary & plans

- Measurement of resonance (3,0) shows good agreement with model
 - But only at 2 BPMs and for only one resonance!
 - There are new BPMs in ATF2! could we try again this simple measurement in the next run?
 - I plan to visit ATF2 in December and other people are willing to collaborate: C. Alabau, F. Zimmermann, etc.
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