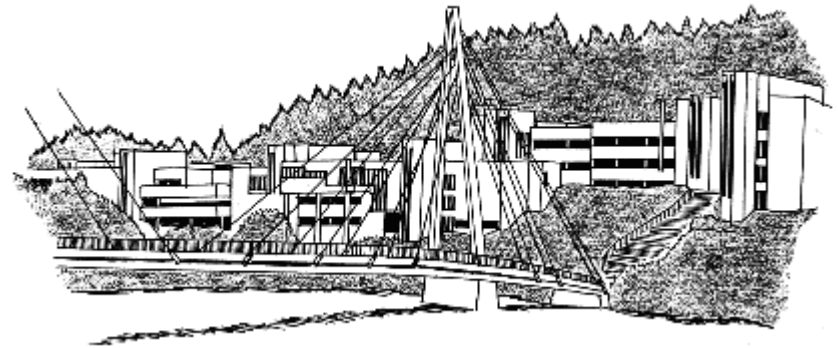
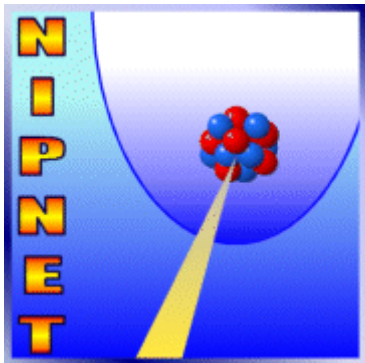


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Systematic studies and improvements

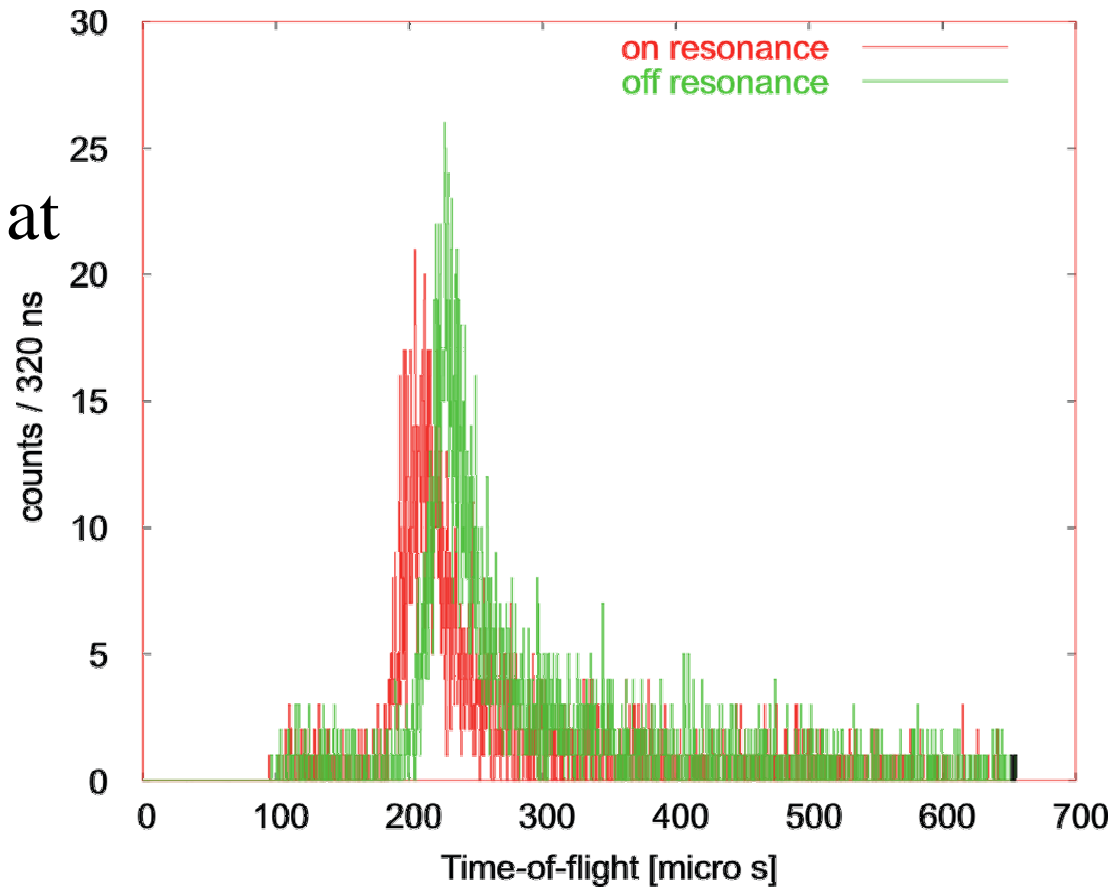


Known issues

- Asymmetric TOF-resonances
 - Time-of-flight as a function of cyclotron frequency
- Ugly TOF-spectra
 - Detected ions as a function of time
- Alignment and improvement of extraction geometry
- + Few other

Time-of-flight spectrum issues

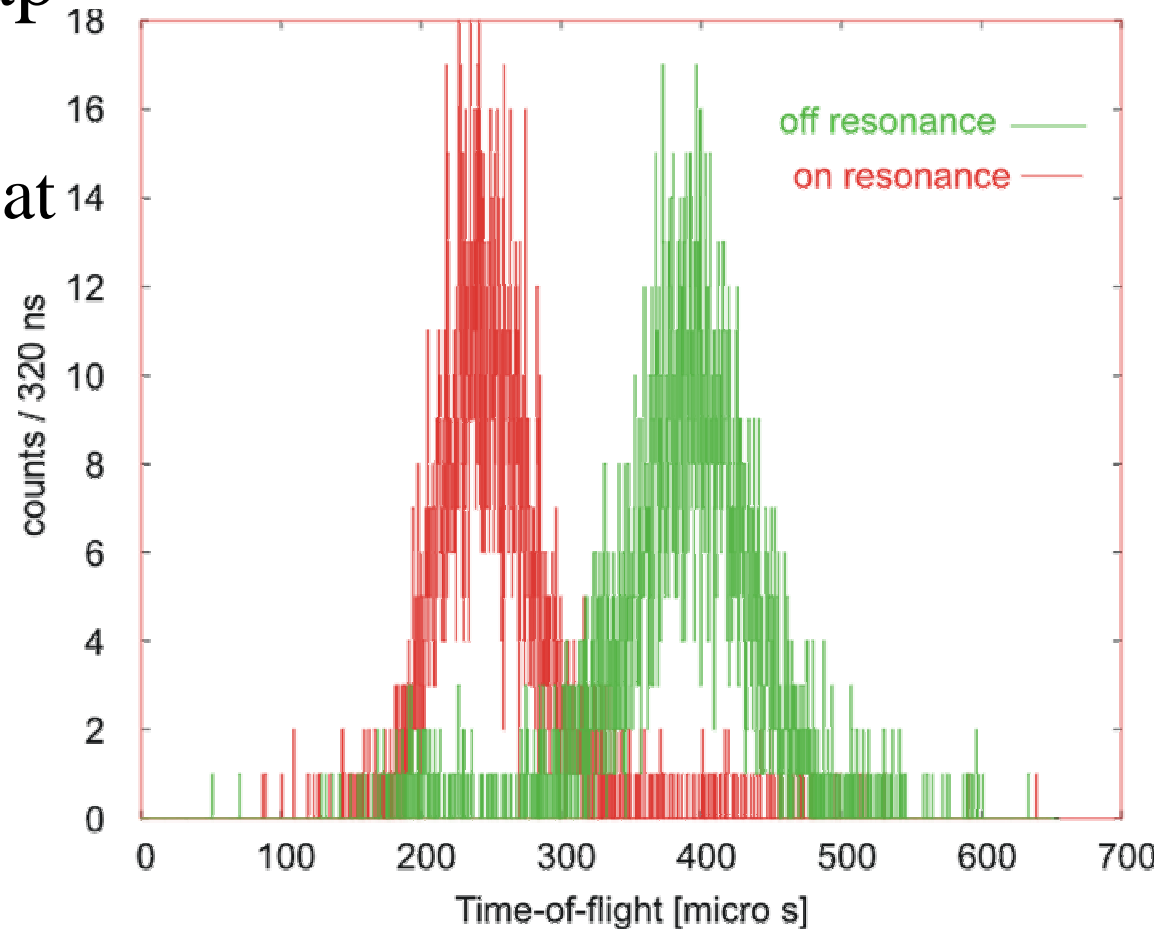
- Until now:
 - Peak + huge tail
 - More ions detected at resonance
 - Fluctuous TOF determination

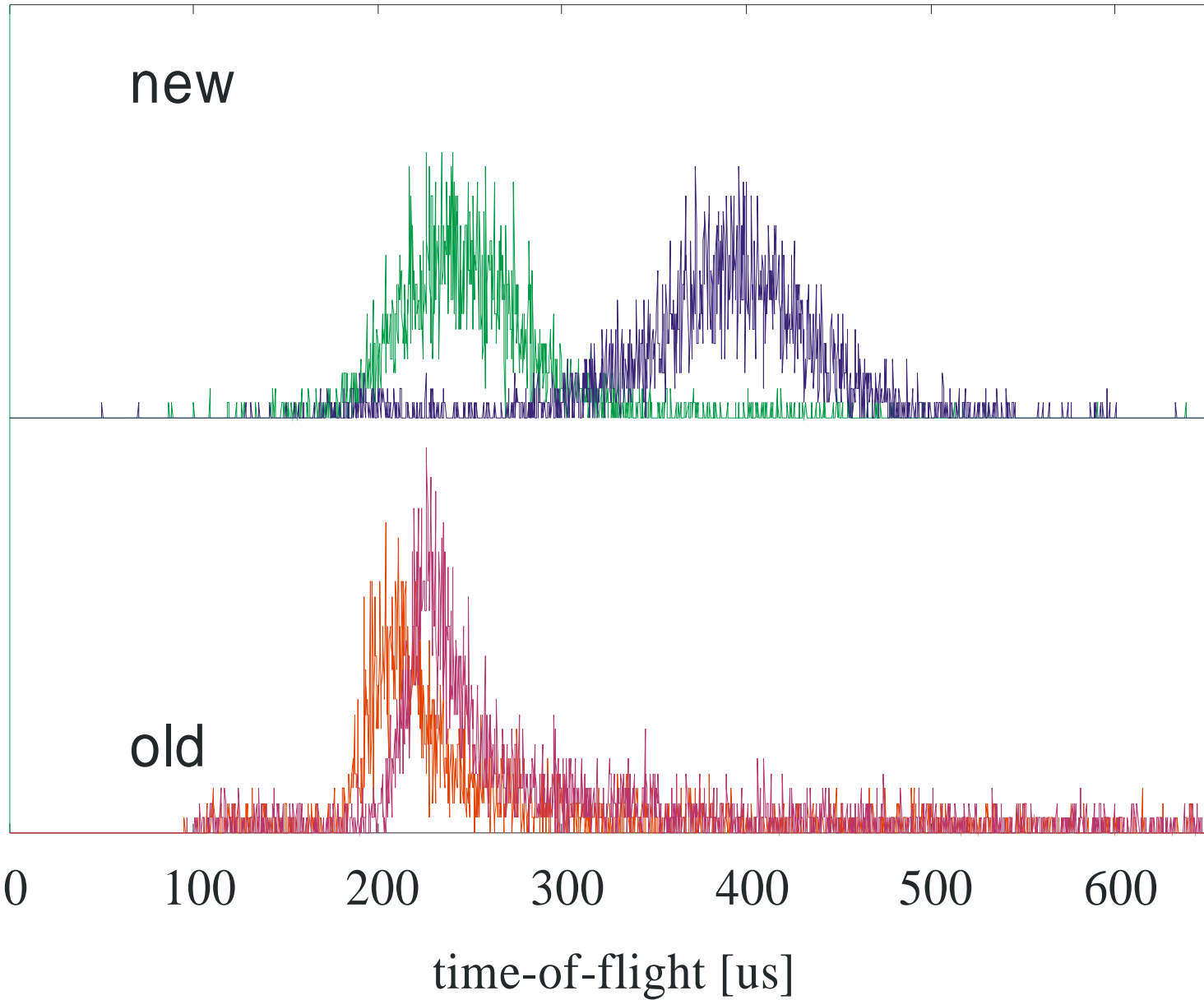


Improved situation

- Lifted precision trap up by 5 V

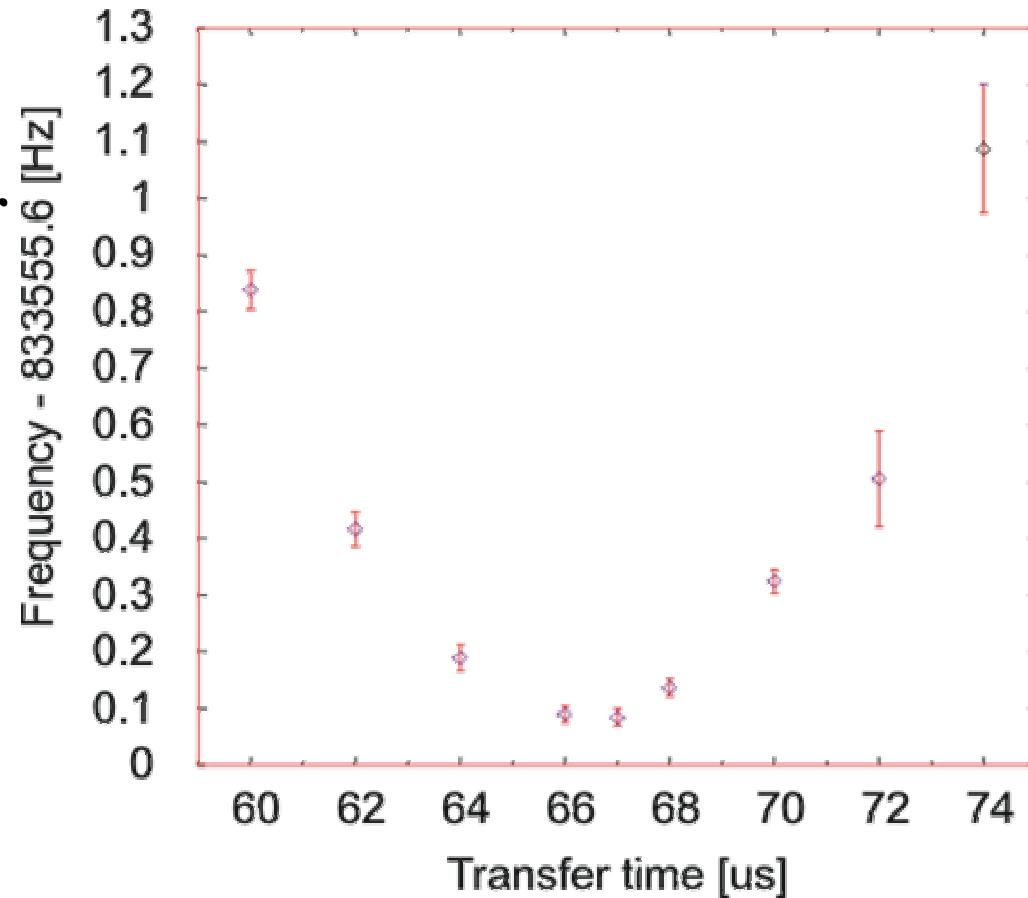
- Both trap bottoms at same level
- Minimising axial energy
- More gaussian shaped
- Better TOF determination





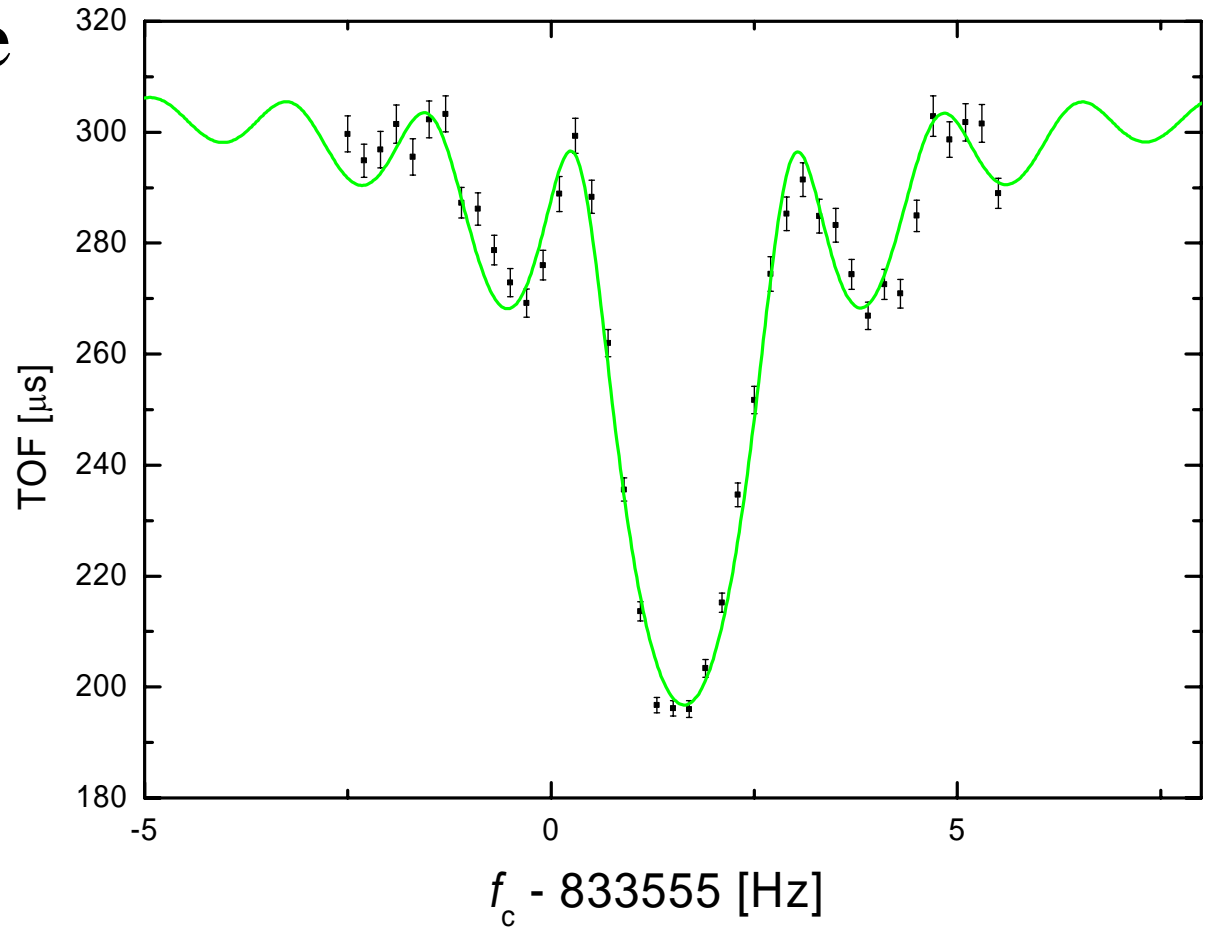
Capturing time effect

- Frequency as a function of transfer time
- Out of optimum:
 - TOF shape bad
 - f shifts
 - Axial energy increases



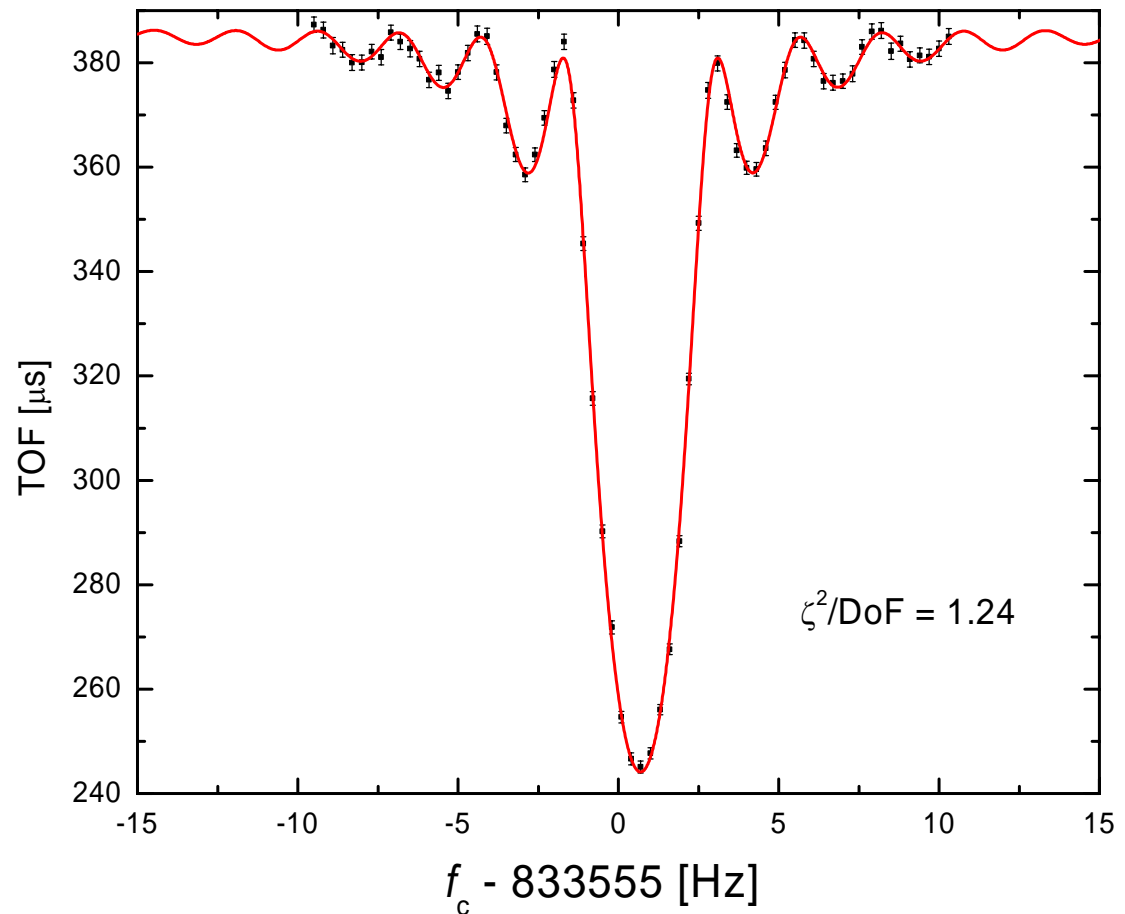
TOF resonance asymmetry

- steeper from the other side
- peak determination difficulties

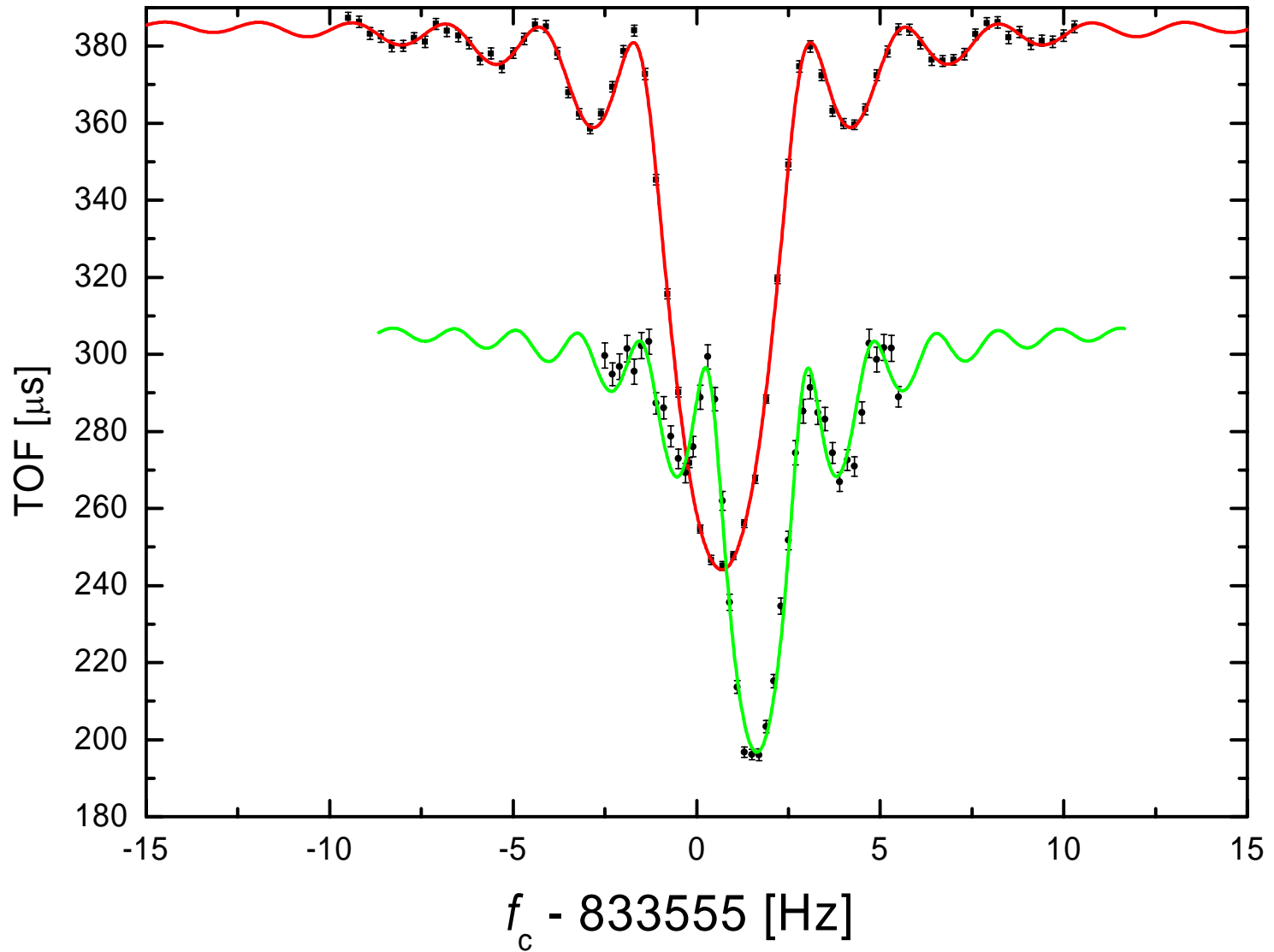


Improved spectrum

- Theoretical shape fits better to experimental
- Tuned trap potentials

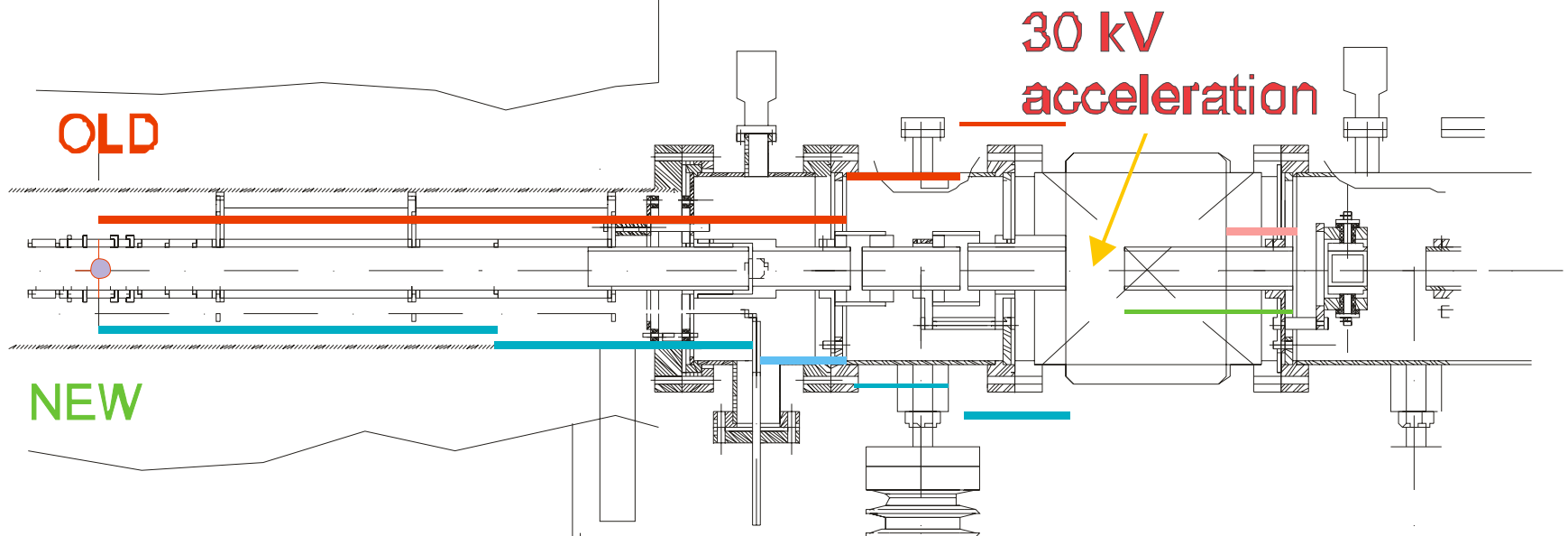


Comparison



Extraction geometry improvements

- Overall better alignment
- Splitted one electrode in two
- Longer ground electrode
- More stable ion detection



Conclusions

- Enhanced TOF
 - symmetric shape
 - bigger TOF effect
- Less statistics needed
- Shift of resonance f
 - reduced axial energy
- Stable countrate
- Magnetron phase-locking needed
- efficiency?

Outlook

- ^{46}V next week
- neutron rich refractory elements (fission)
- In-trap spectroscopy
- More systematic studies:
 - Countrate effects
 - B-field stability
 - Capturing time sensitivity
 - mass effects