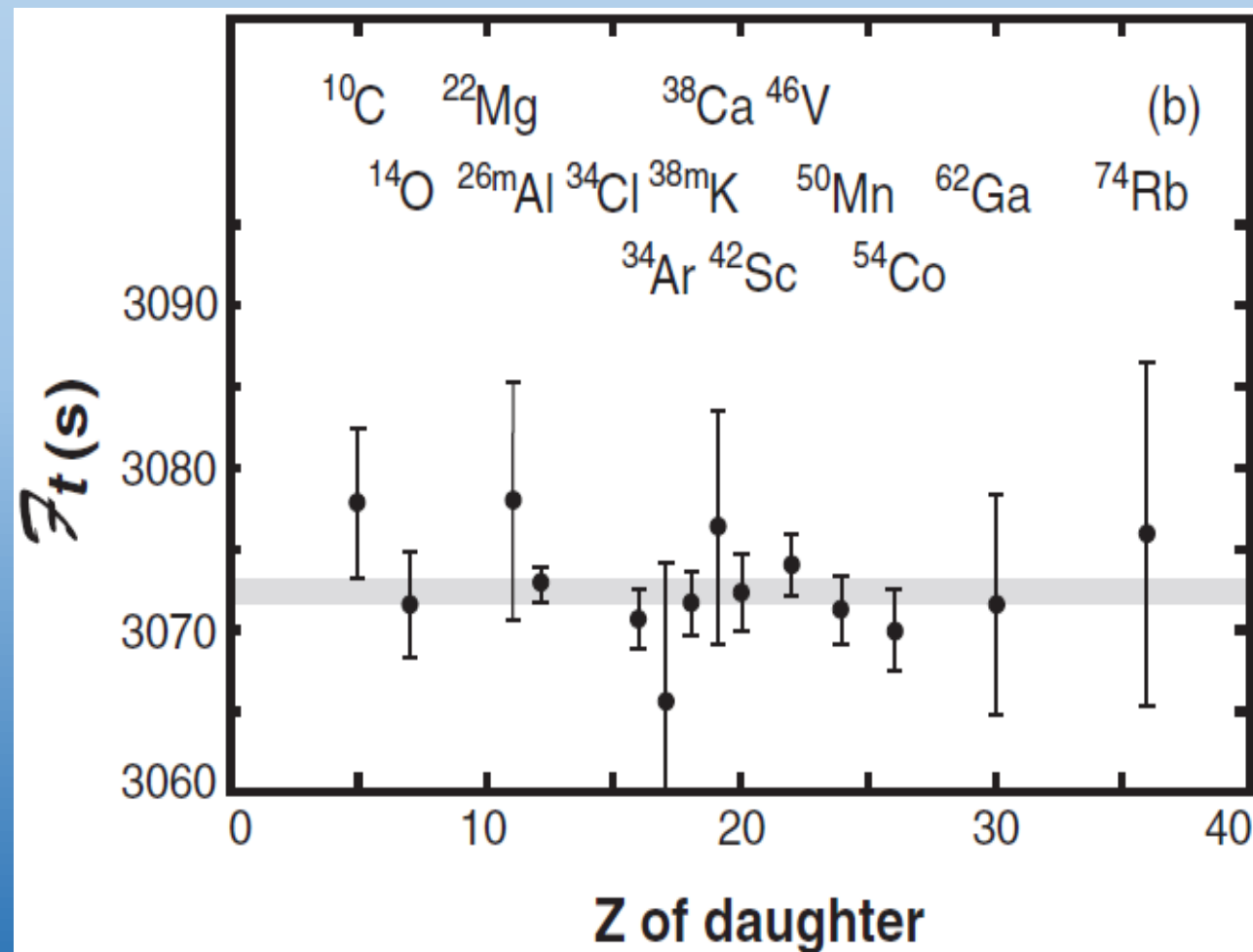


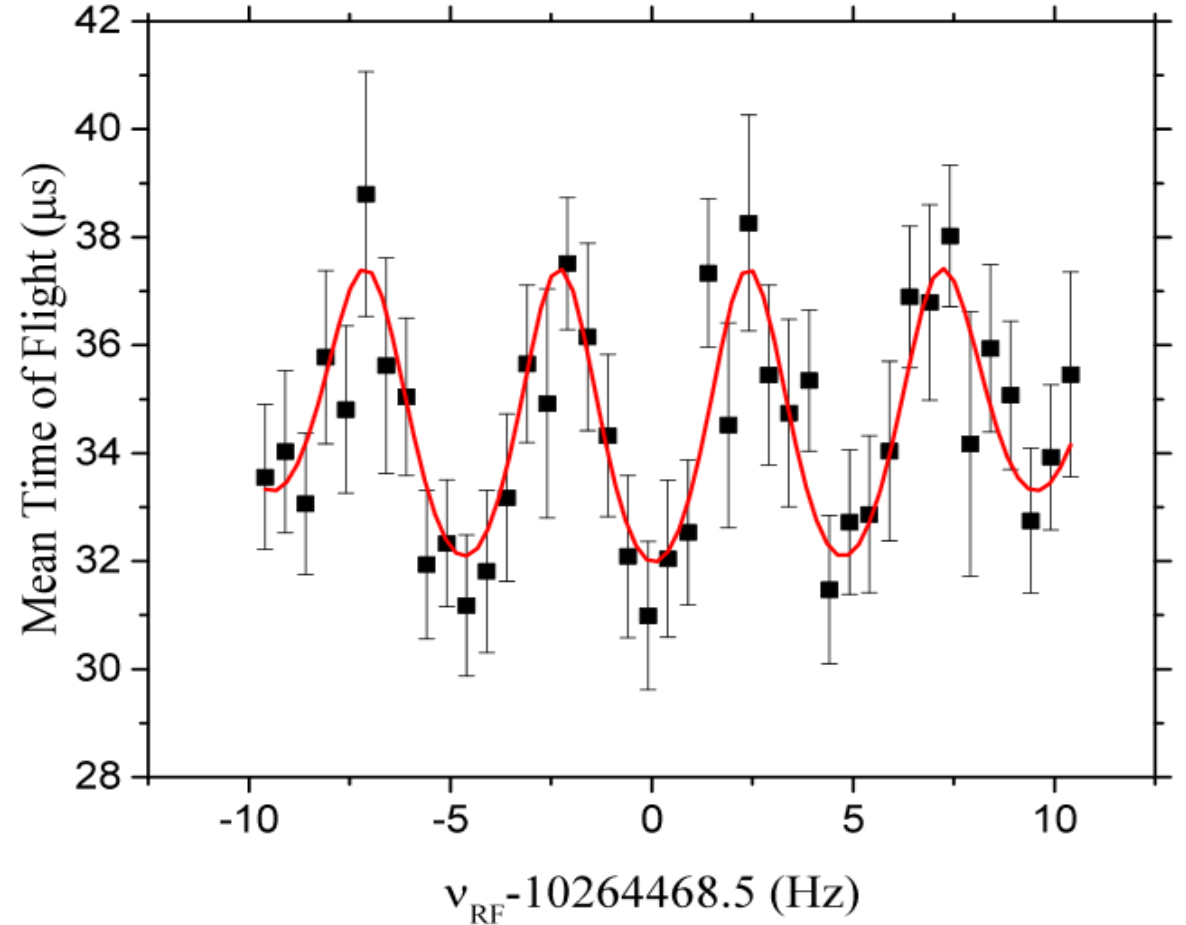
What to Measure

- Ft is a measure of the “forbiddenness” of a decay
- Standard Model says Ft value should be identical for all $0^+ \rightarrow 0^+$ β -decays
- All “traditional nine” Q-values measured directly by Penning trap except O^{14}
- LEBIT has now measured O^{14} as 5144.364(25) keV



How to Measure

- Ions held with quadrupole electric field and uniform magnetic field.
- Excited using RF field.
- The cyclotron frequency is determined by fitting the time of flight data to the theoretical profile.
- The uncertainty of the Q-value of O^{14} went from 230 keV to 28 keV



What to Measure Next

- The contribution of the Q-value in the Ft uncertainty has dropped from 1.7 to 0.2.
- To further improve the uncertainty, the branching ratio must be measured far more precisely
- Theoretical contributions to Ft , such as isospin mixing, must also be improved

