# Equilibration Chronometry
## Characterizing neutron-proton equilibration with sub-zeptosecond resolution



Alan McIntosh, Texas A&M University, NuSym 2016, Beijing

*Motivation:*

**Constrain the nuclear equation of state.**

*Background:*

**N-Z equilibration should be directly observable in heavy ion reactions.**
**One fragment from binary split evolves in time.**

*Hypothesis:*

**The composition of the two fragments from a binary split**
**should evolve toward each other with time.**

*Methods:*

**NIMROD 4π array.**
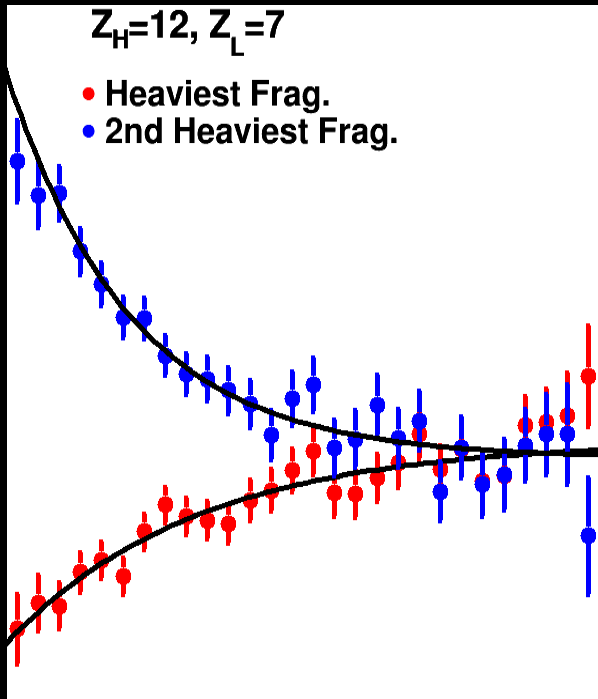**First measurement of N-Z of both fragments.**
**Fine time resolution from alignment angle.**

*Results:*

**<u>We observe N-Z equilibration as a function of time.</u>**
**Equilibration curve is approximately exponential → First order kinetics**
**Zeptosecond timescale.**

2015 data analysis
Jedele et al.

For details of the analysis,
and for collaborative opportunities,
please contact me!
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