

Precision Mass and Decay Lifetime Measurements at the HIAF-SRing facility

- How are the elements from iron to uranium produced in the Universe?

- GeV/u, 10^{11} ppp, 3Hz
- PF/in-flight Fission

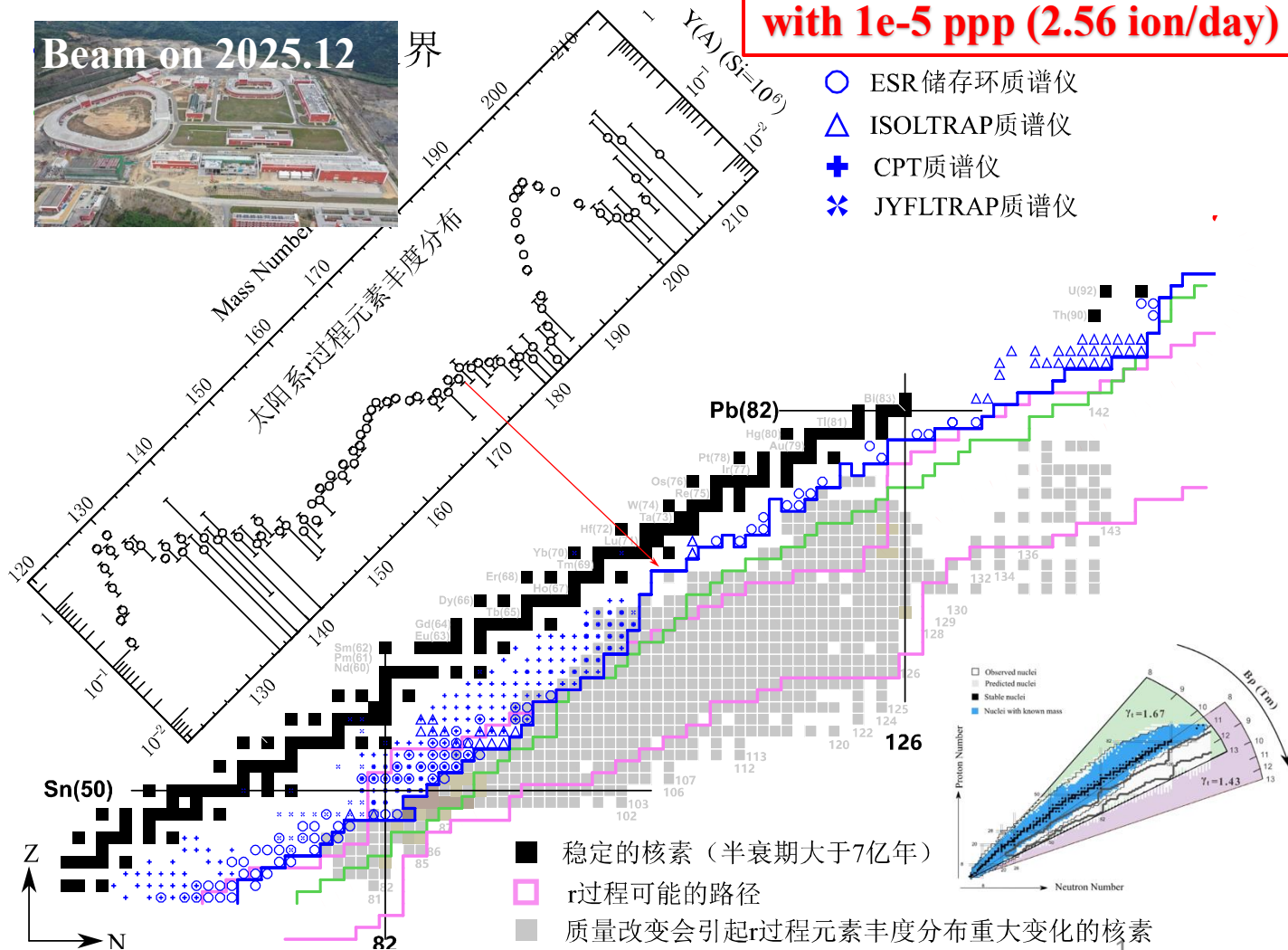
Border of available nuclides with $1e-5$ ppp (2.56 ion/day)

Isochronous Mass Spectrometry (IMS)

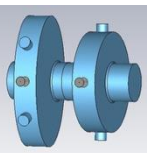
- Pros: **Fast ($\sim 200 \mu\text{s}$)**
Bp determination
Moderate m-resolving power ($> 3e5$)
- Cons: limited by C-foil of the TOF ($< 1 \text{ ms}$)

Schottky Mass Spectrometry (SMS)

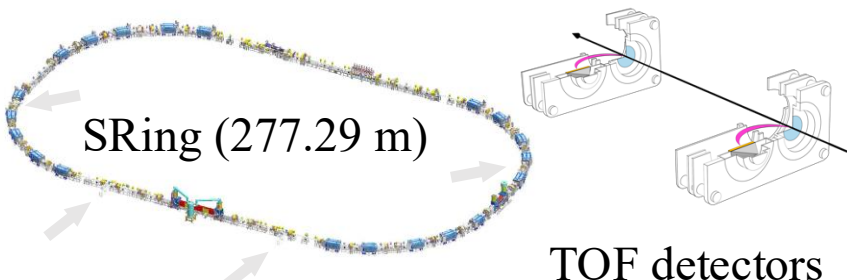
- Pros: **High m-resolving power ($\sim 8e5$)**
Simultaneous M & T measurement
Capable of any beam intensity
- Cons: limited by beam cooling ($> 1 \text{ s}$)



M.R. Mumpower *et al.*, Progress in Particle and Nuclear Physics. 86 (2016) 86.



Schottky detectors



TOF detectors