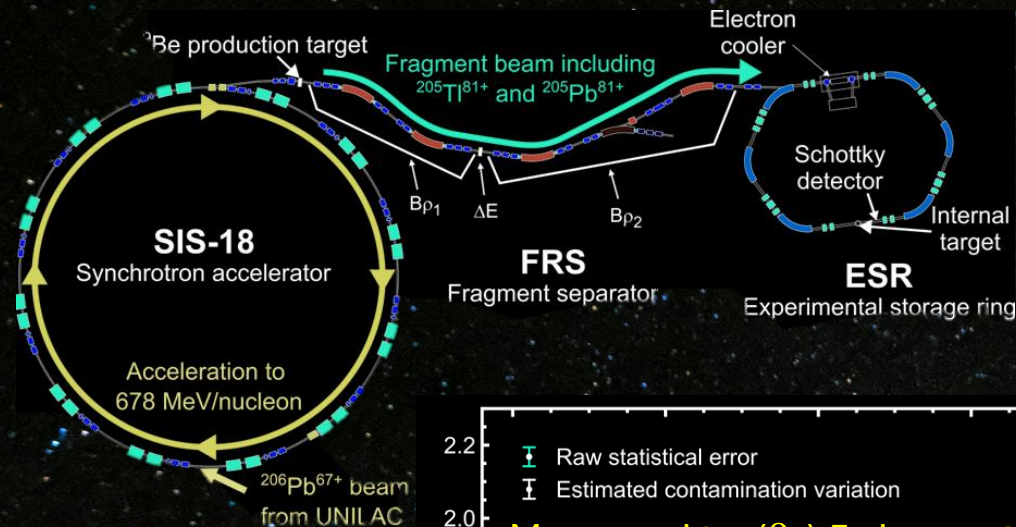


# Bound-state $\beta$ decay of $^{205}\text{Tl}^{81+}$ clarifies $^{205}\text{Pb}$ dating in the early Solar System

Iris Dillmann and Guy Leckenby for the E121 Collaboration



- Neutral  $^{205}\text{Tl}^{0+}$  is stable,  $^{205}\text{Pb}^{0+}$ :  $t_{1/2} = 17$  My
- $^{205}\text{Tl}^{81+}$  undergoes  $\beta_b$ -decay to  $^{205}\text{Pb}^{81+}$ :  $t_{1/2}(\beta_b) = 291$  d
- Results reaffirm the site of the Sun's birth as a long-lived, giant molecular cloud
- Support the use of  $^{205}\text{Pb}$ – $^{205}\text{Tl}$  as a chronometer in the early Solar System.

