

The r-process

Or, “how do elements heavier than iron get made in core-collapse supernovae?”

Explosive nucleosynthesis

- If the densities and temperatures get high enough, then *explosive nucleosynthesis* can take place
- This happens when neutrons are added to a nucleus *faster* than its β -decay timescale
- Once the neutrons are added more slowly, β -decay can take over: this is the “s-process”

- These are the *only* ways to build up elements heavier than ^{56}Fe

The r-process path

