Inherent Safety of Nuclear Reactors (Self-Limiting)

- Uranium-238 stops absorbing many neutrons.
- The density of water rises, slowing neutrons.
- Temperature effect of a moderator (density effect): As the density of the water drops, deceleration of neutrons ceases, which reduces the ratio of neutrons absorbed by U-235.
- Doppler effect on the fuel: Uranium-238 absorbs a lot of neutrons.

- Fission increases → Temperature rises → Fission decreases
- Temperature drops → Safe even if left alone (stable)
- Some output state

- Not Self-limiting
- Moves to one side if left alone (unstable)
- Some output state

[Low output state] [High output state]