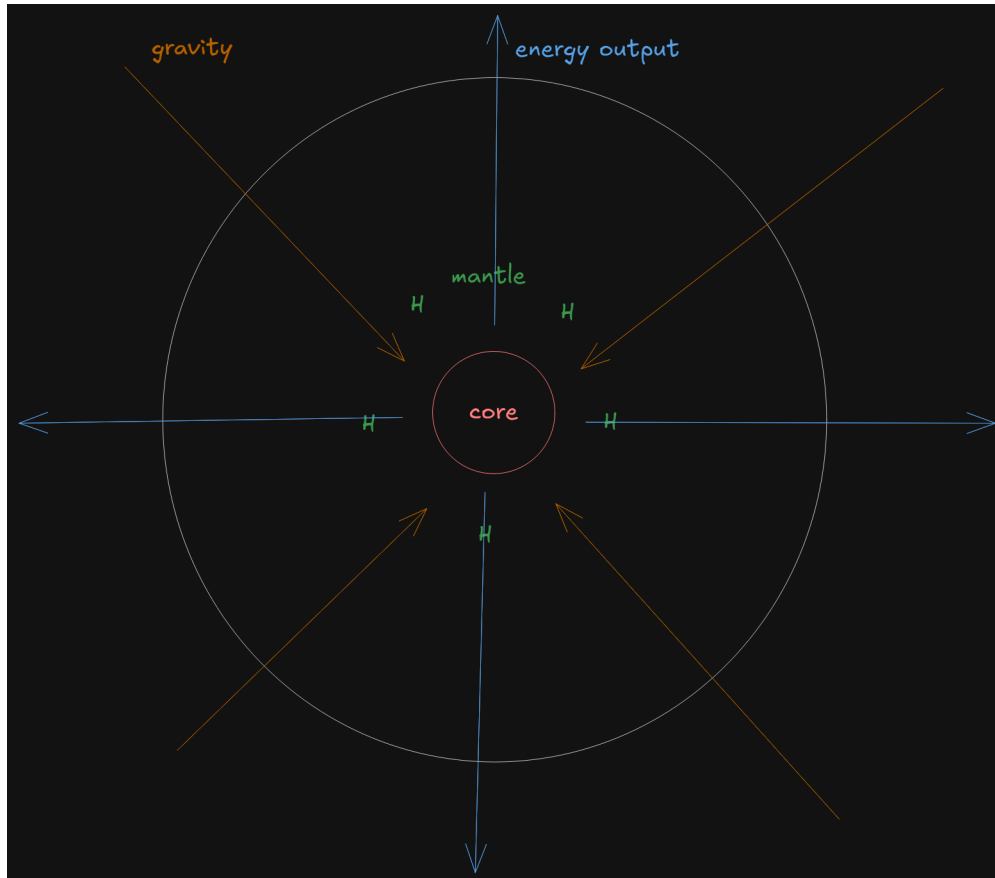


# 12 - Earth's Formation

## The Sun

### Nuclear Fusion

- Process that powers the sun



- Once the hydrogen runs out, the sun shrinks
- Helium that is there fuses into carbon, causes the sun to expand into a red giant
- It will then consume the inner planets, in 4-5 billion years
- Eventually leaves behind a very dense ball of carbon called a white dwarf when the red giant dissipates
- In bigger stars
  - $H \rightarrow He \rightarrow C \rightarrow \dots$
  - The fusion keeps going into heavier elements
  - It will implode (supernova)
  - Leaves behind a cloud of dust, gas, and tiny rocks
  - Eventually clumps back together (this is what created our solar system)

## Solar System Formation

1. Supernova leaves behind a cloud of dust, gas, tiny rocks

2. Cloud flattens into a spinning disc
3. Sun forms in the middle of the disc (circumstellar disk)
4. Solar wind differentiates disc
5. Disc separates into rings
6. Each ring accretes into a planet