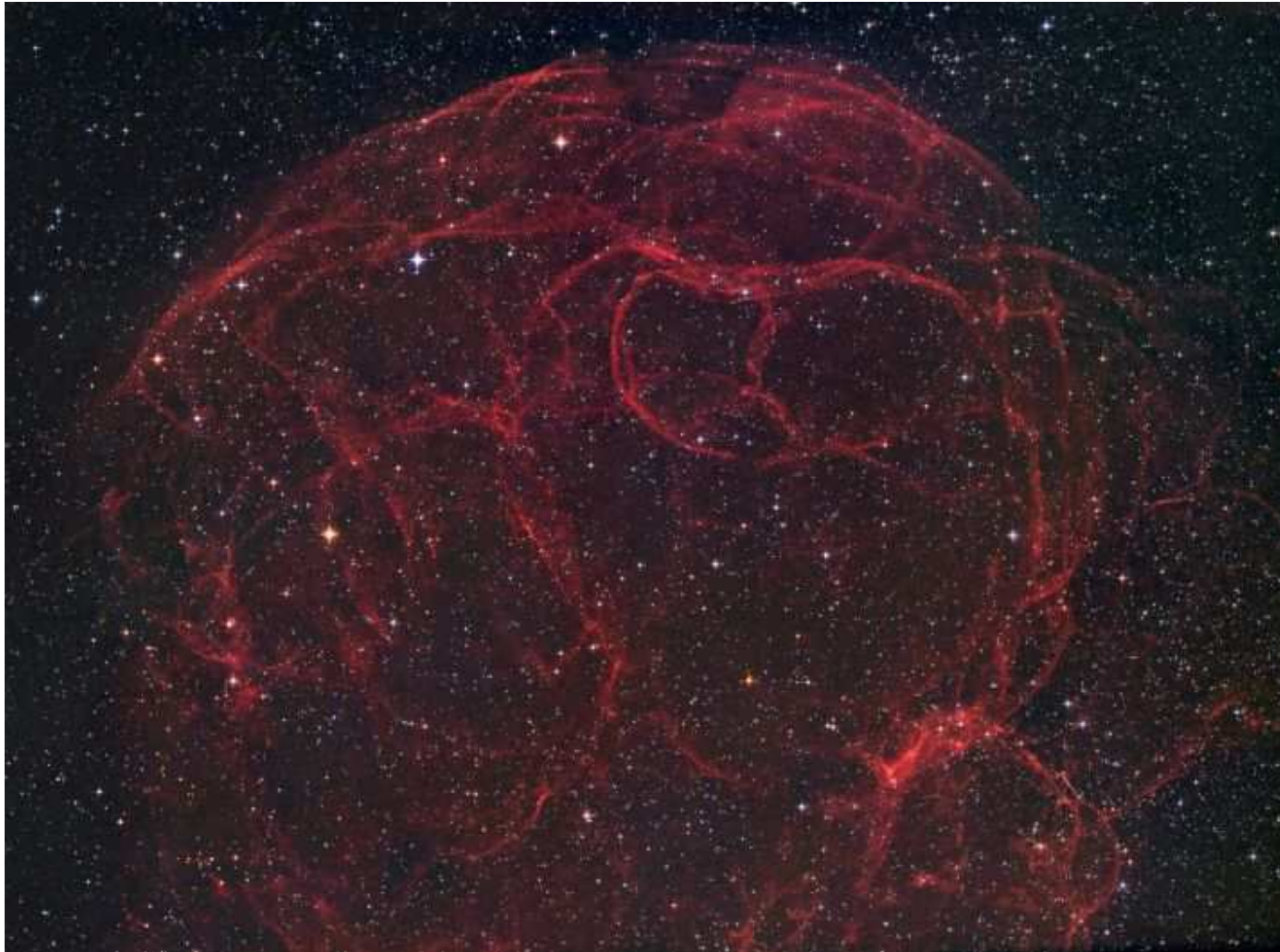


## *Lecture 25: Announcements*

- 1) Homework 4 due Monday Apr 4.  
Tip: Read through and ask for help/clarification before the weekend.
  
- 2) Quiz based on reading assignment for Wed Apr 6:  
Ch 17, Properties of Stars (Cosmic Perspectives, 3<sup>rd</sup> Ed)  
Main ideas are in “Summary of Key Concepts” at the end of chapter.

## Lecture 25: Astronomy Picture of the Day



- à Simeis 147: Supernova Remnant in Taurus. Covers 3 deg or size of 6 full moons on the sky
- à Composite of optical images shows shocked, glowing gas. After a massive star exploded 100,000 years ago, this gas was blasted out and heated by shock waves.
- à It leaves behind the stellar core which has collapsed into ?? a spinning neutron star

## *Lecture 25: Astronomy Picture of the Day*



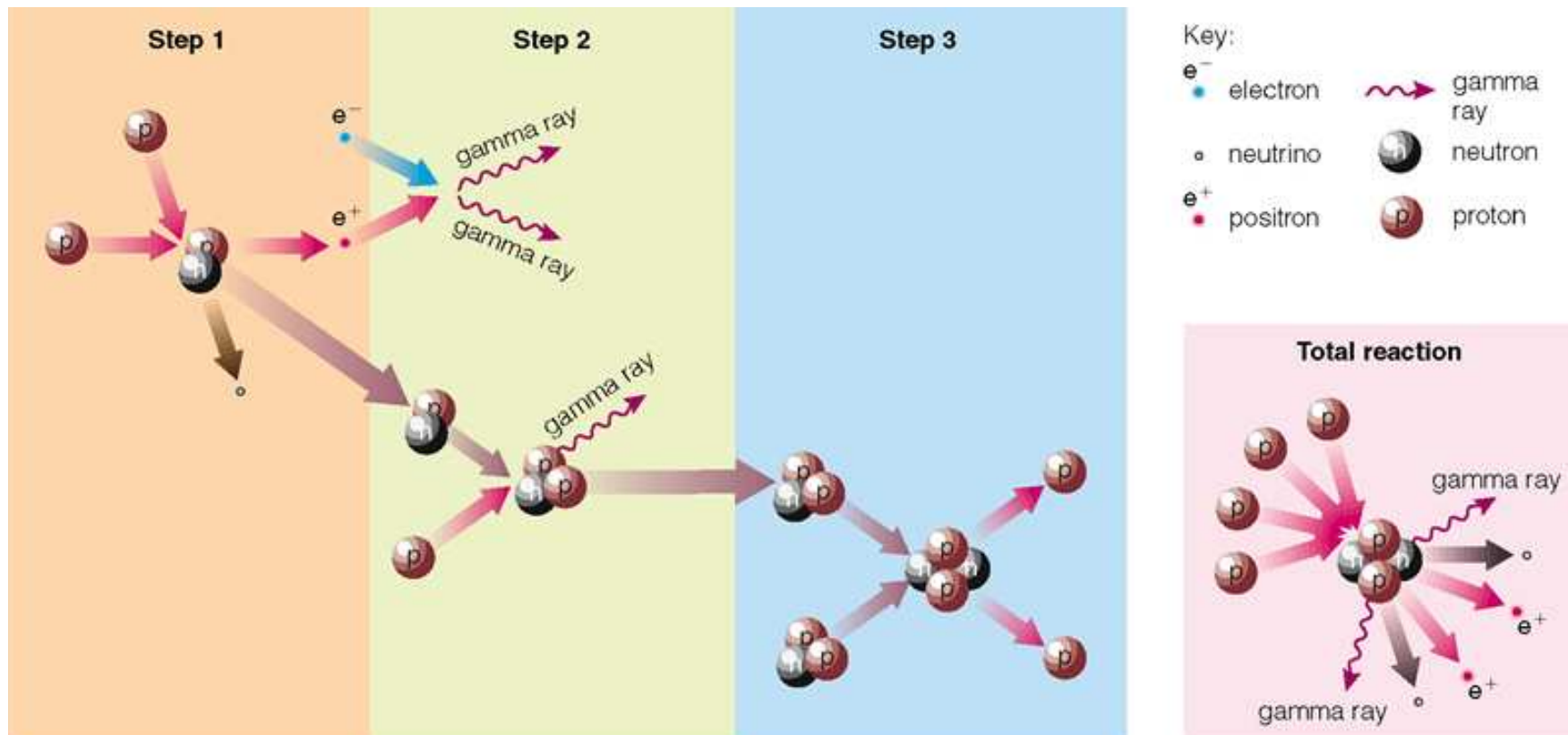
à Discovery of water on Mars announced this morning.....April's fool day!

# *Properties and Evolution of Stars*

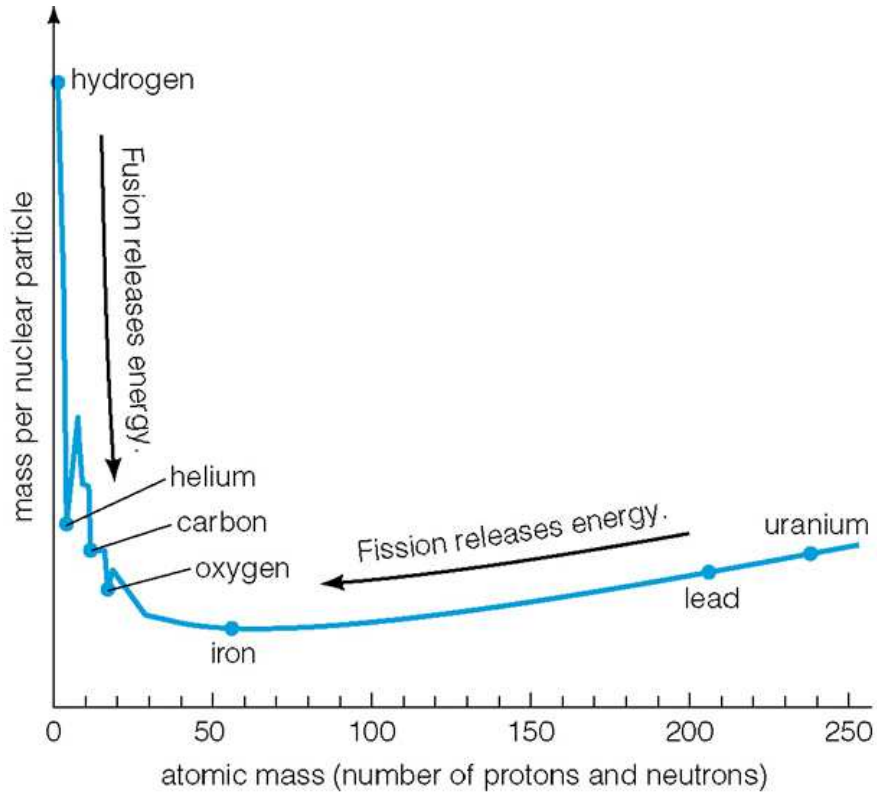
## See in class notes today

- Properties of stars on main sequence.
- The Main Sequence Lifetime of a star
  
- Energy generation by fission and fusion of elements heavier than H
- Nuclear fusion of H, He, C, N, O, Si in the core and shells of stars
- 2 important principles for understanding fusion in cores of stars
  
- Evolution of stars off the main sequence: radically different for high and low M star
- How mass determines the lifetime, evolution, destiny, and (L,R,T) of a star!

# Fusion of proton into Helium nuclei: The proton-proton chain

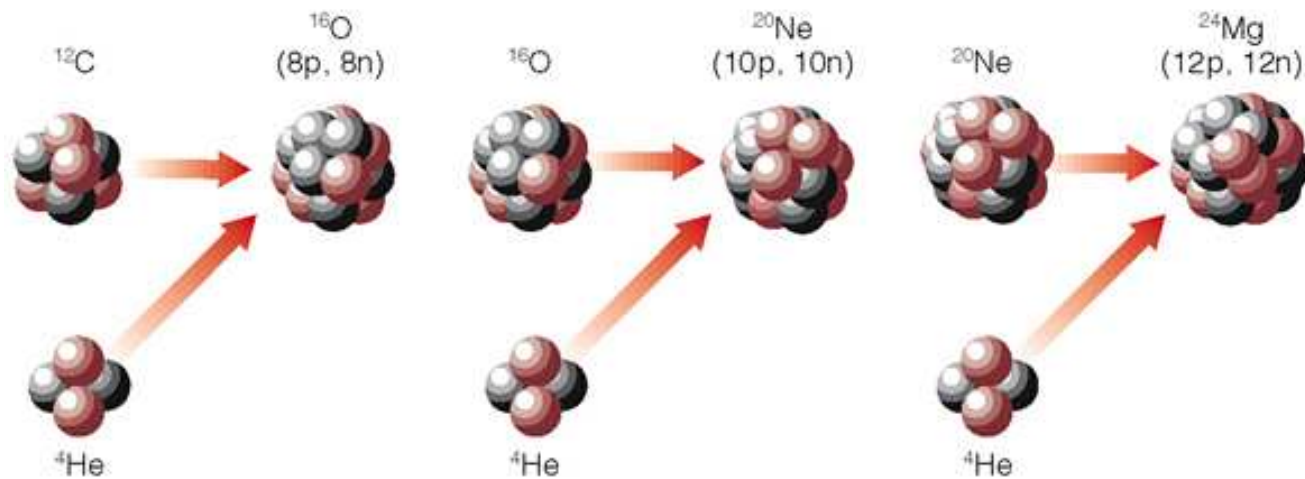


# Energy generation by fusion and fission of elements heavier than H



# Energy generation by fusion of C He N O into Si Fe

## Helium-capture reactions



## Other reactions

