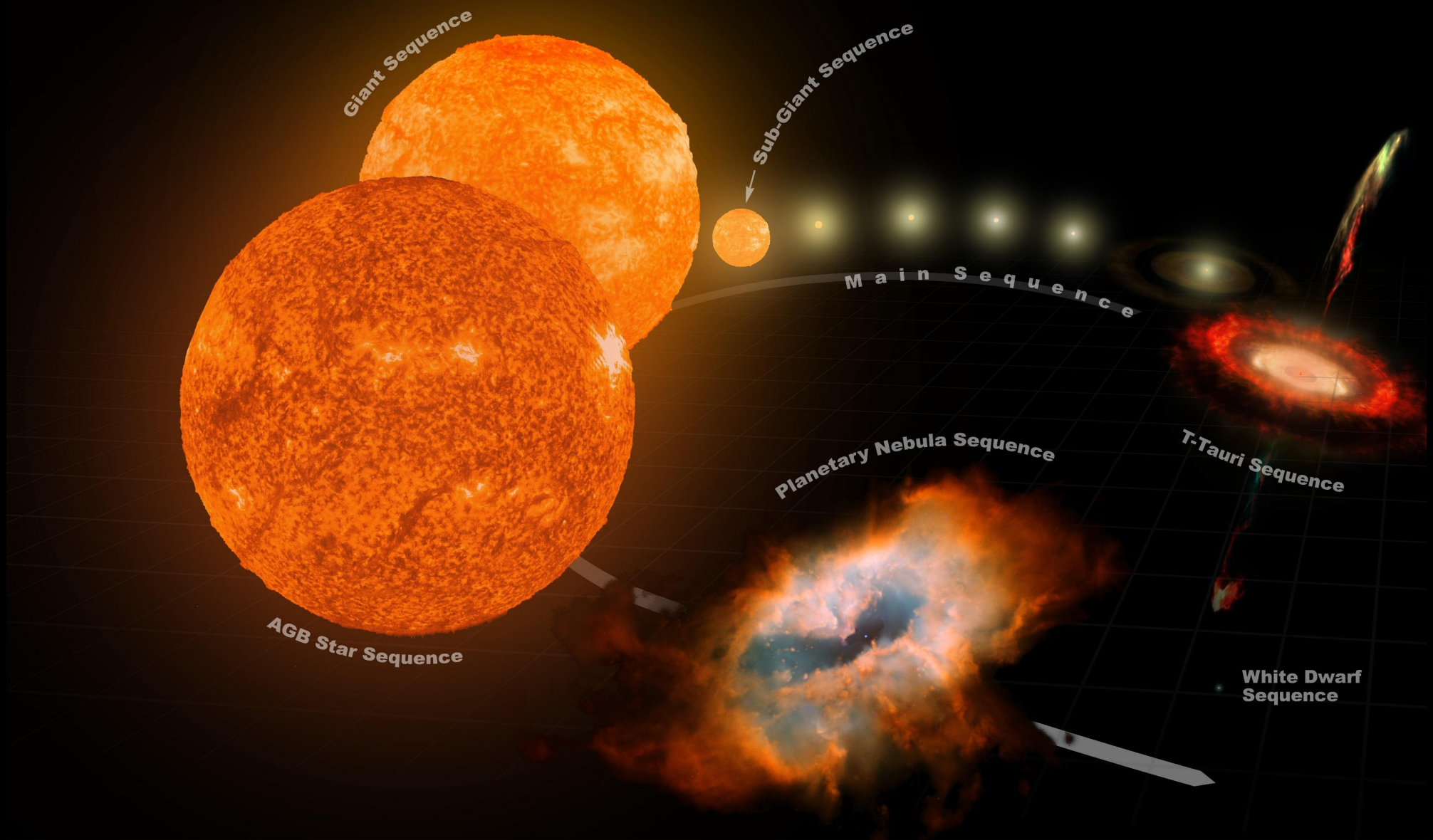
NO LIVES MATTER

ScienceOfTheUniverse

We are all just specks of
dust in the universe.

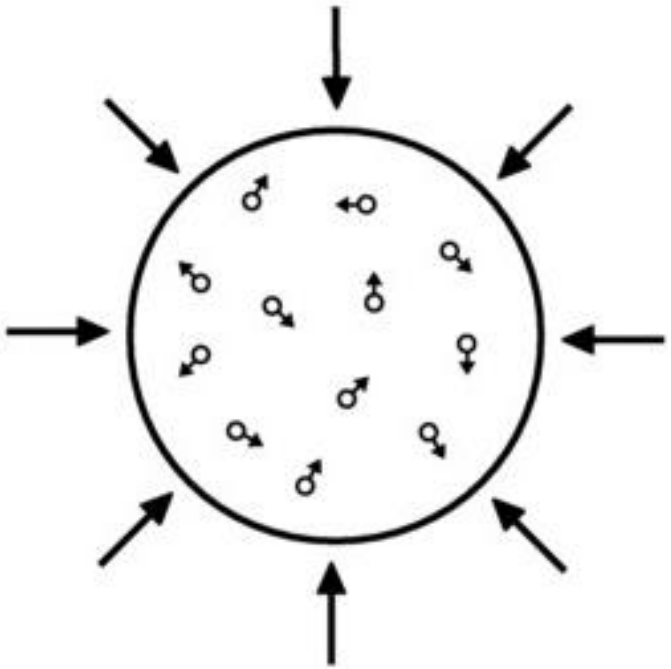
**Nothing we do is meaningful
in the grand scheme of things.**

Stellar Evolution (0.8 - 8 $M_\odot$)

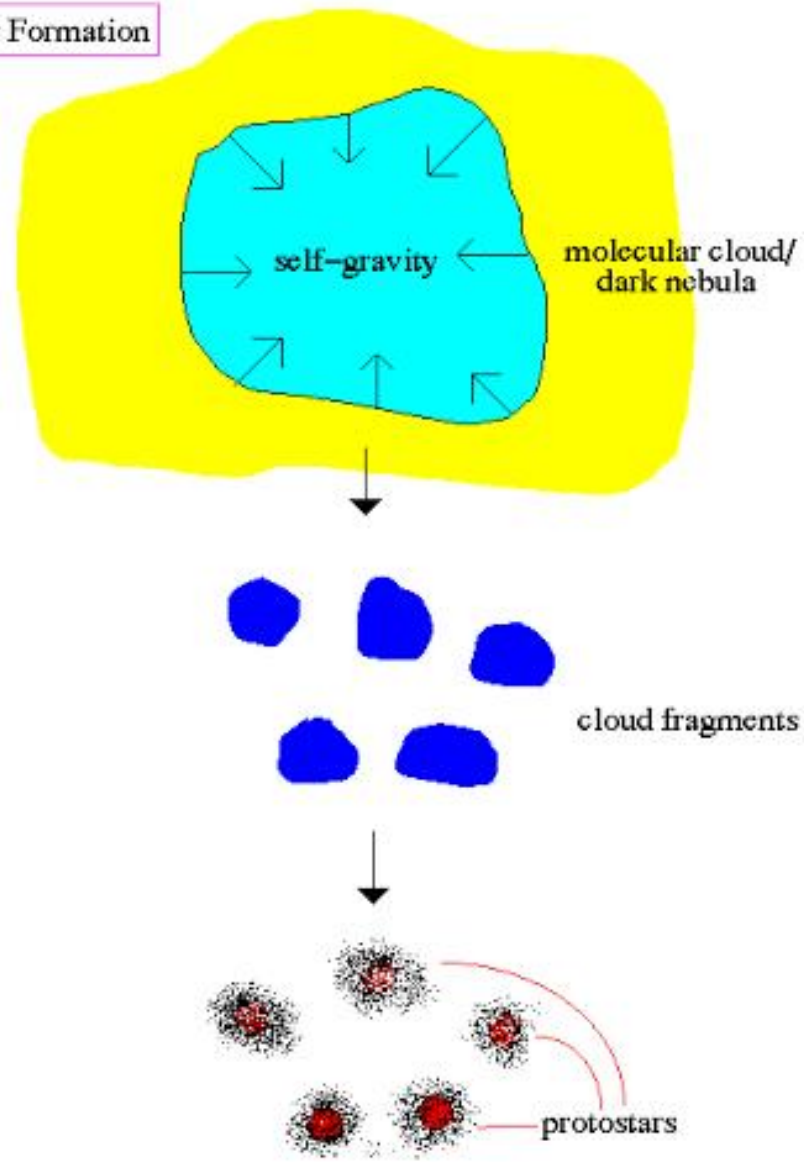



STAGE : 1

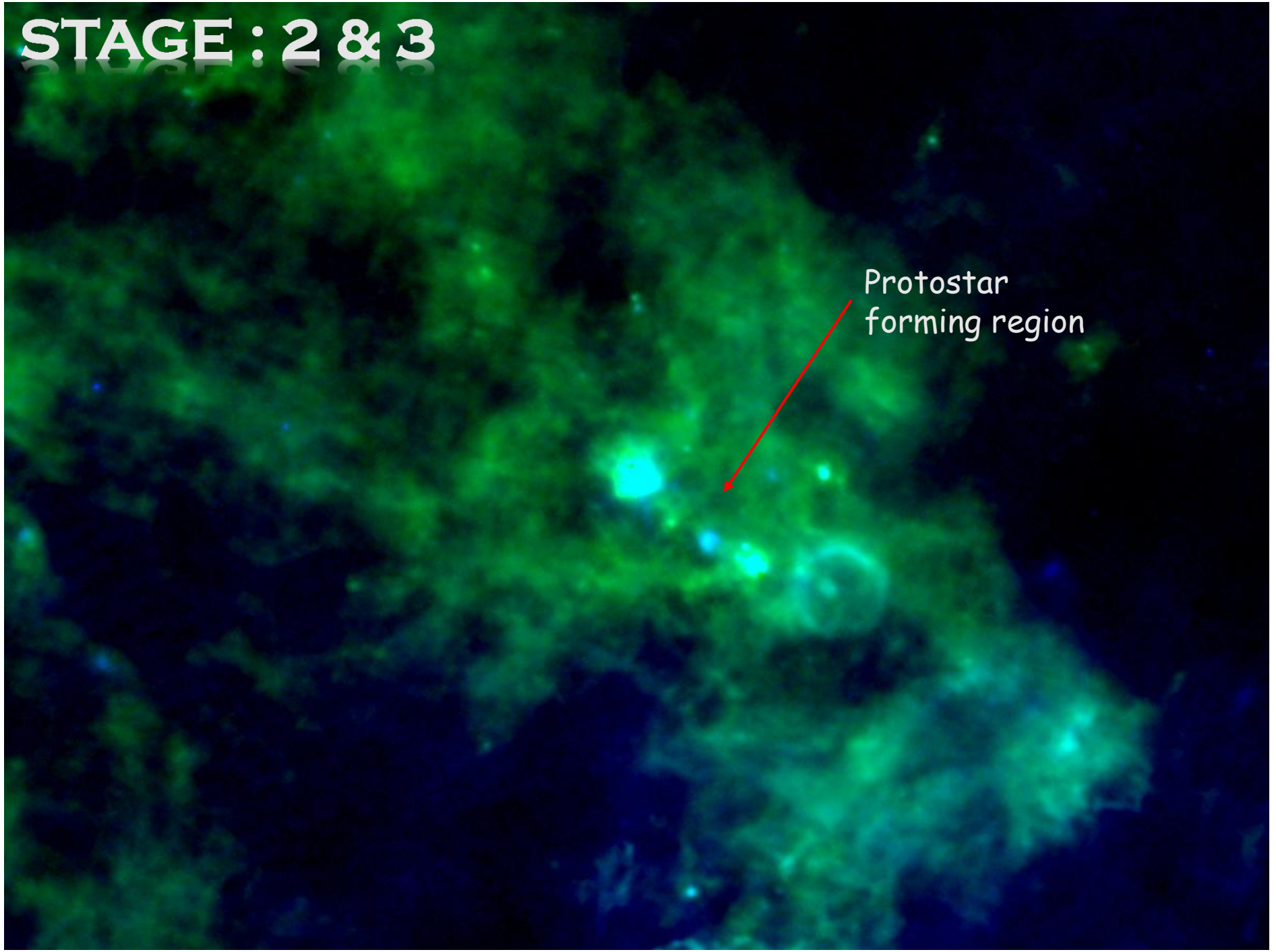
Gravitational Collapse



Star Formation



STAGE : 2 & 3



In the stage 2 and 3, the interstellar cloud start gaining shape like a sphere.

STAGE : 2

Temperature : 100 K

Particle density : 10^{12} particles/m^3.

STAGE : 3

Temperature : 10000 K

Particle density : 10^{18} particles/m^3.

STAGE : 4

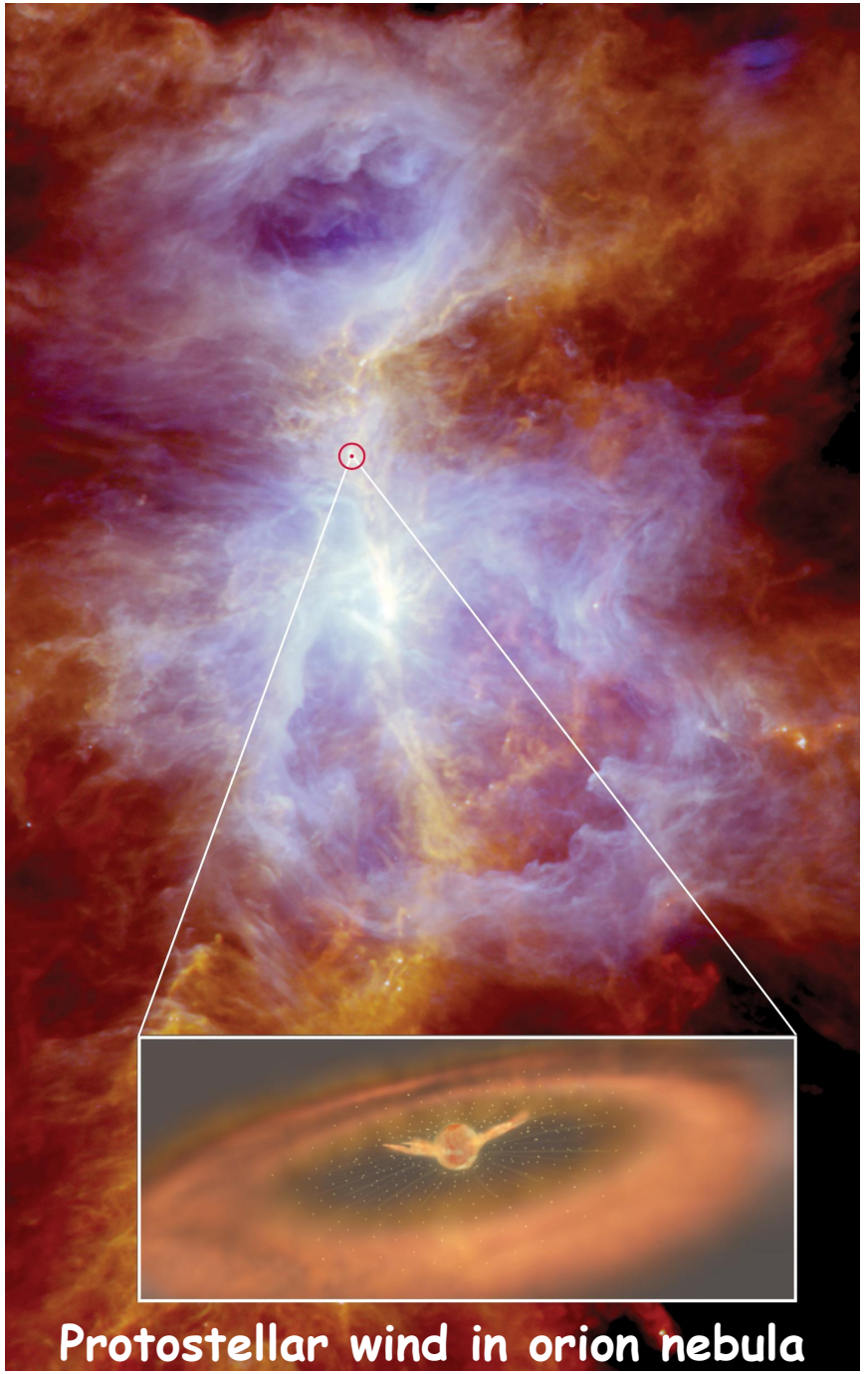
Temperature : 10^6 K

Becklin-Neugebaur object

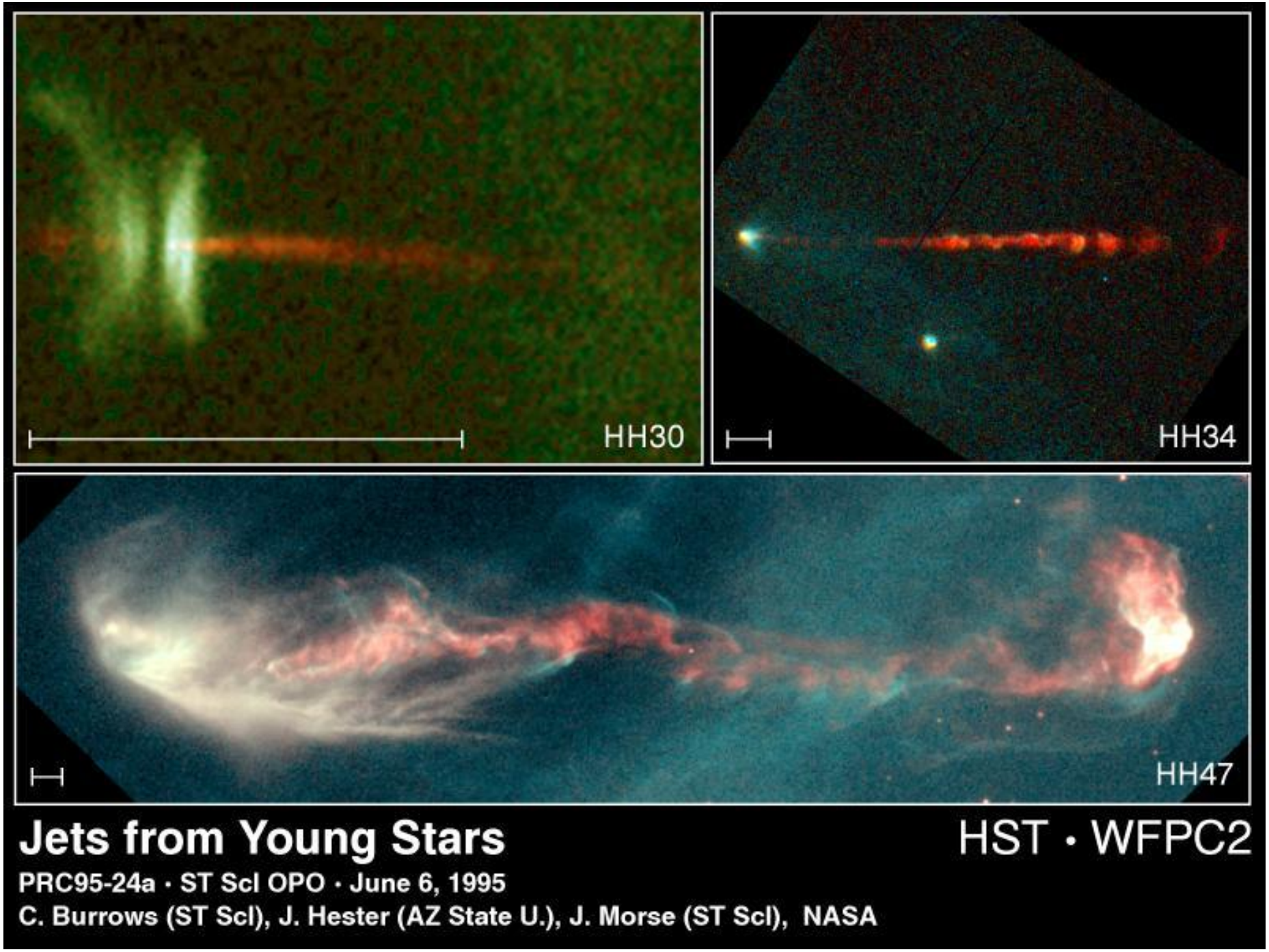
These photos in the Orion nebula, shows stage-4 of stellar evolution, having a luminosity 1000 times of our Sun.

STAGE : 5

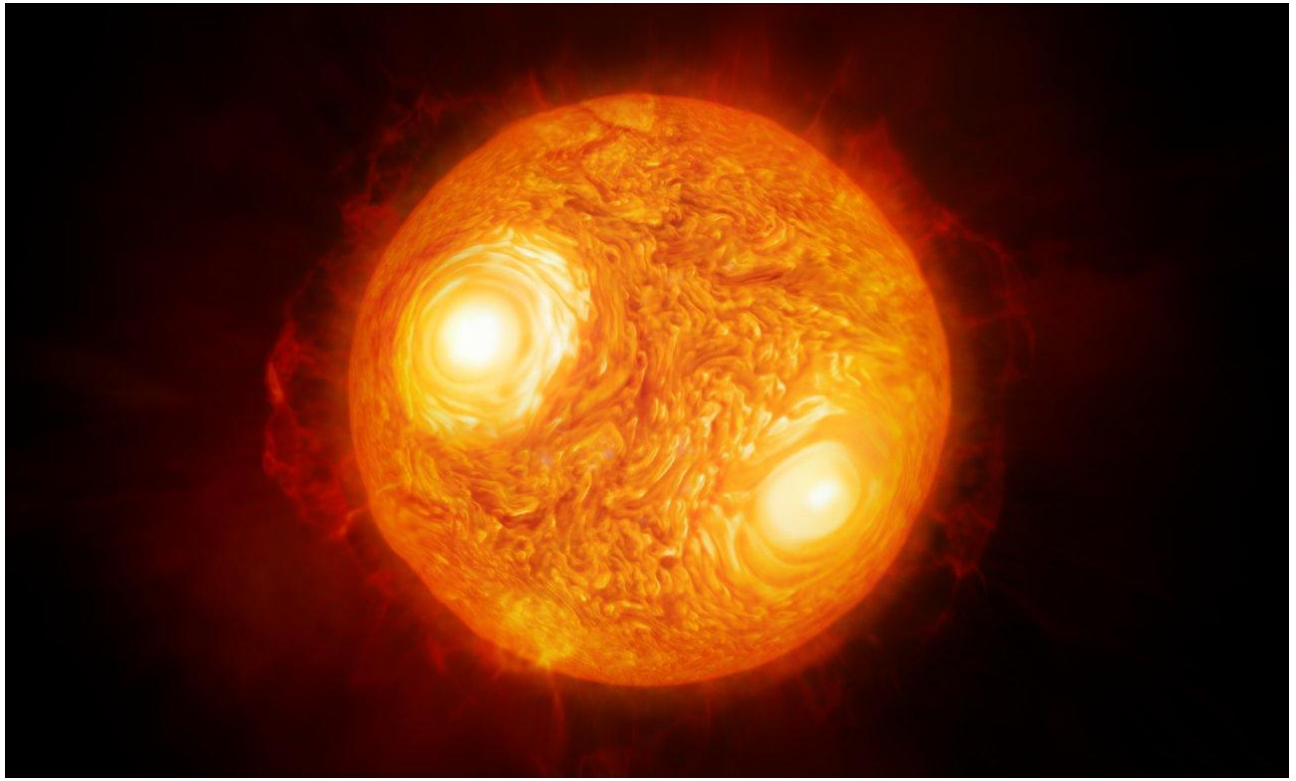
The star still isn't in equillibrium



Protostellar wind in orion nebula

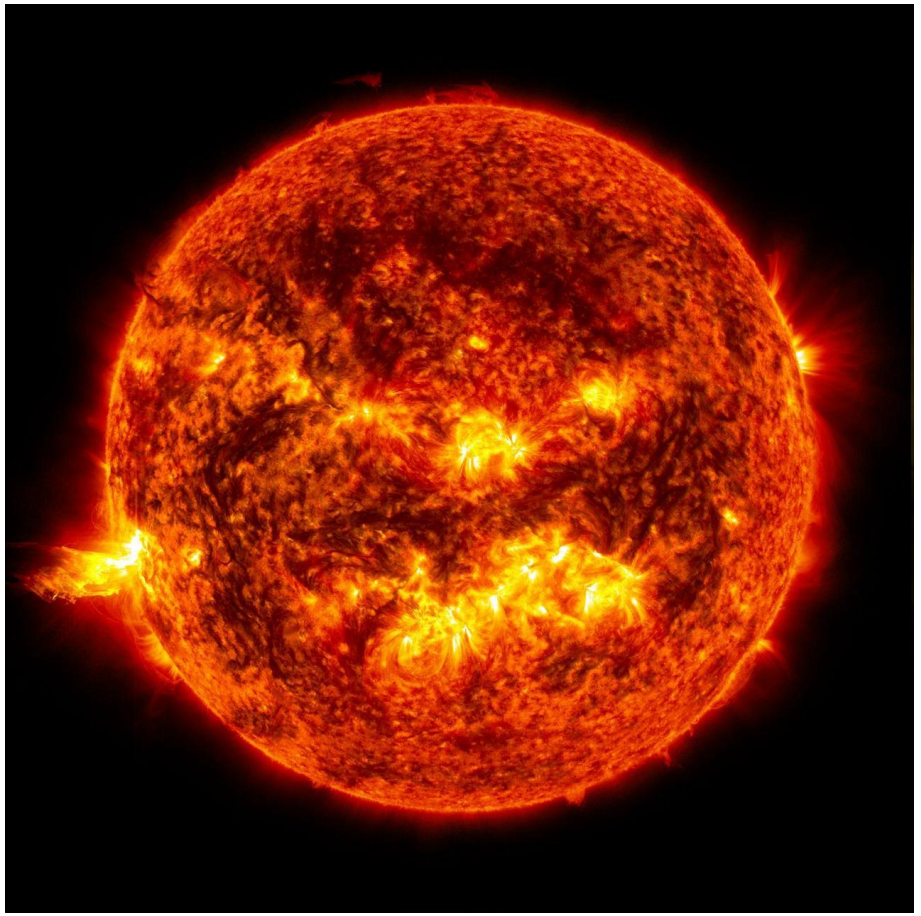


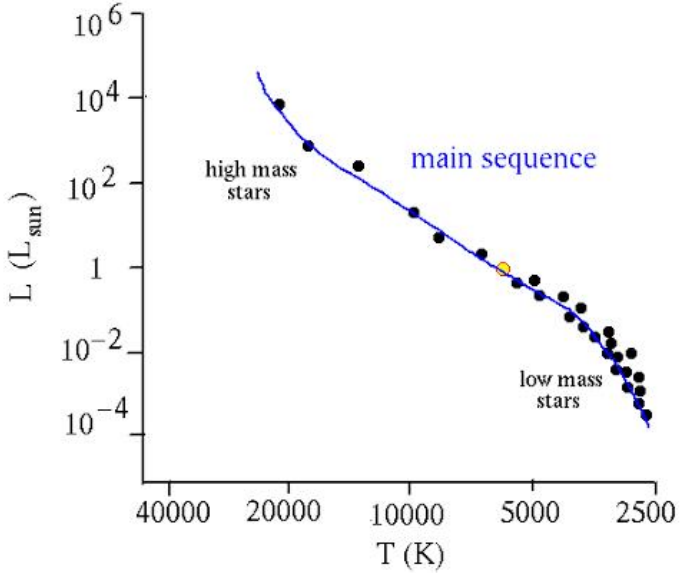
The strong protostellar wind interacting with the nebular disk, around the star, forms a bipolar flow; seems two jets of matter perpendicular to the nebular disk.



Stage : 6

Start taking spherical shape.
Core temperature : 10^7K
Surface temperature : 4500 K

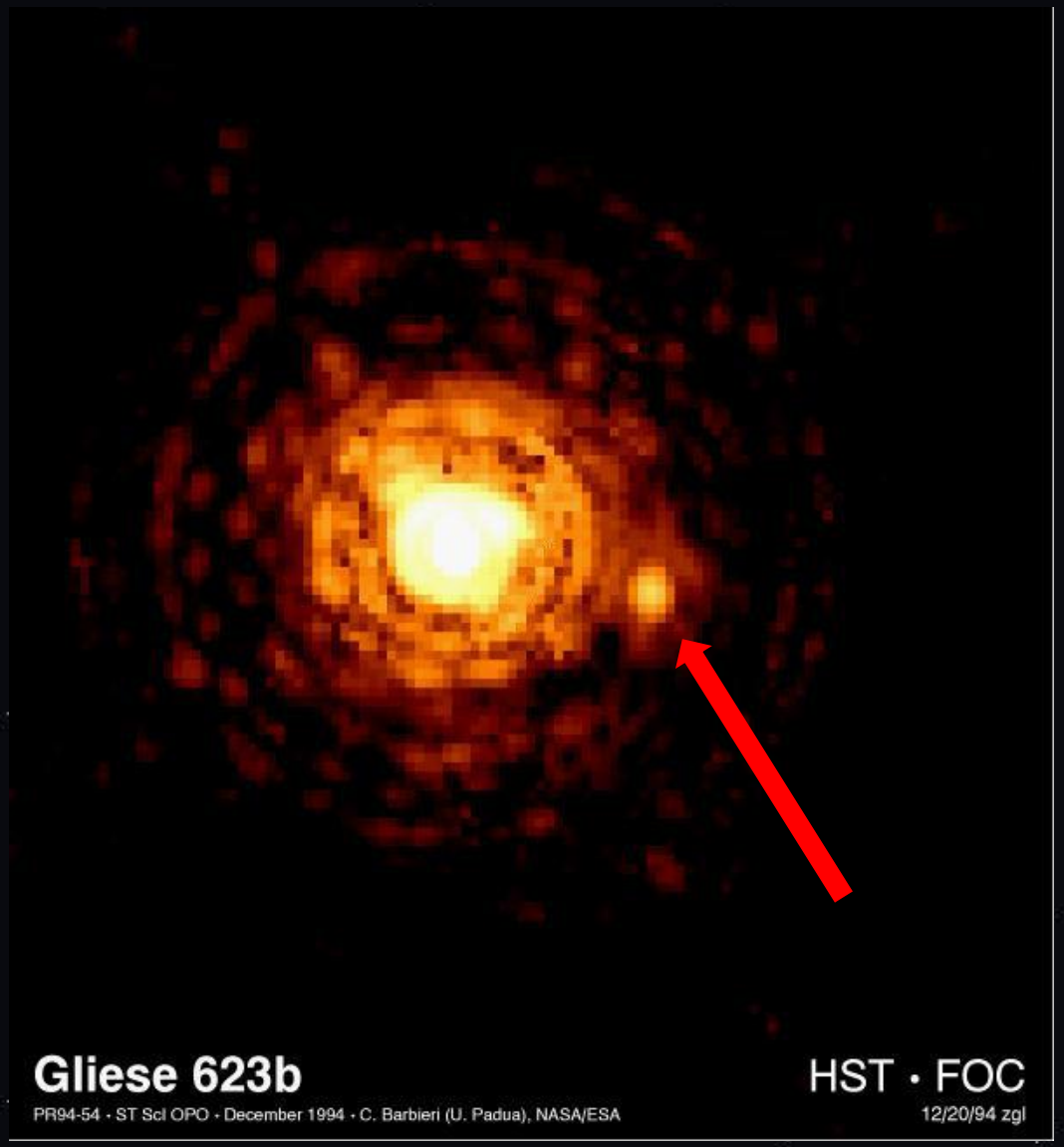


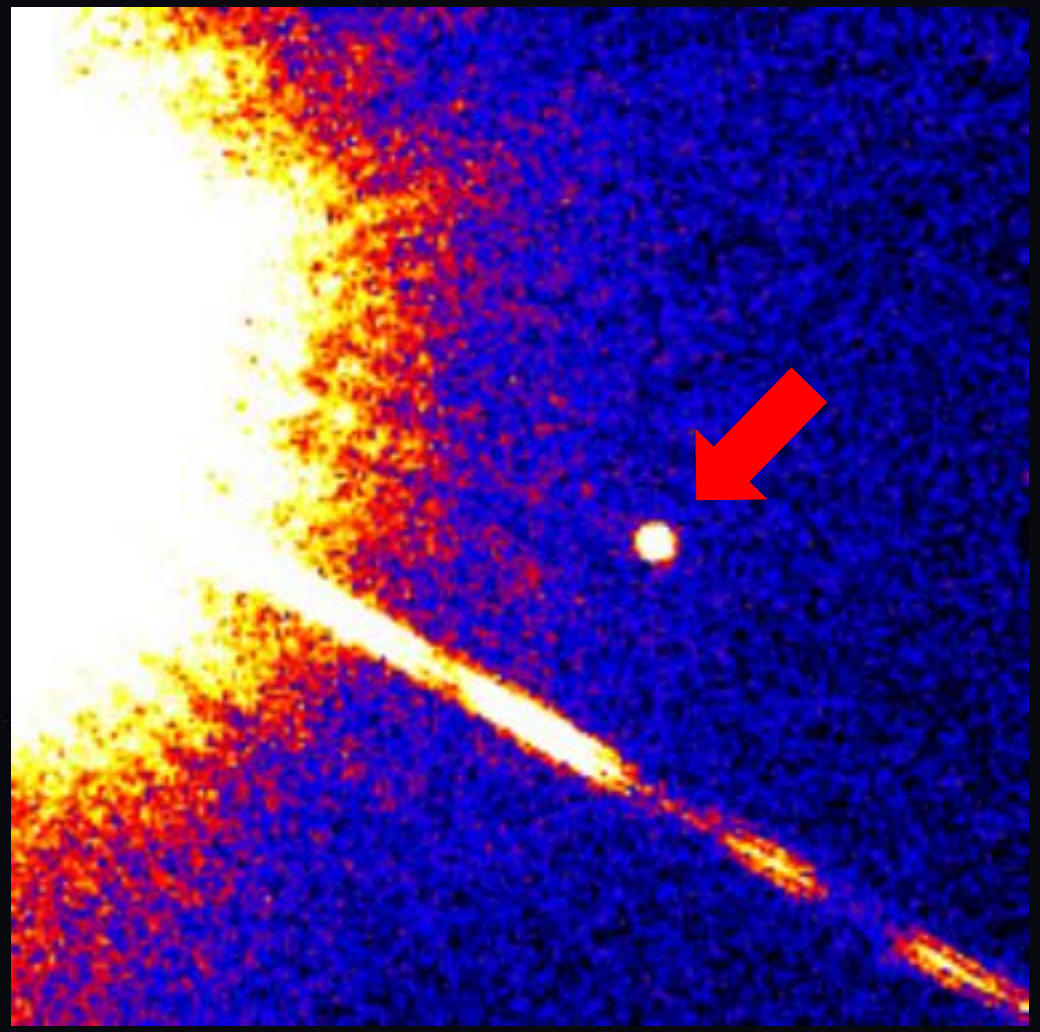


Stage : 7

The star is now an ideal one.
Core temperature : 1.5* 10^7K
Surface temperature : 6000 K
Density : 10^{32} particles/m^3

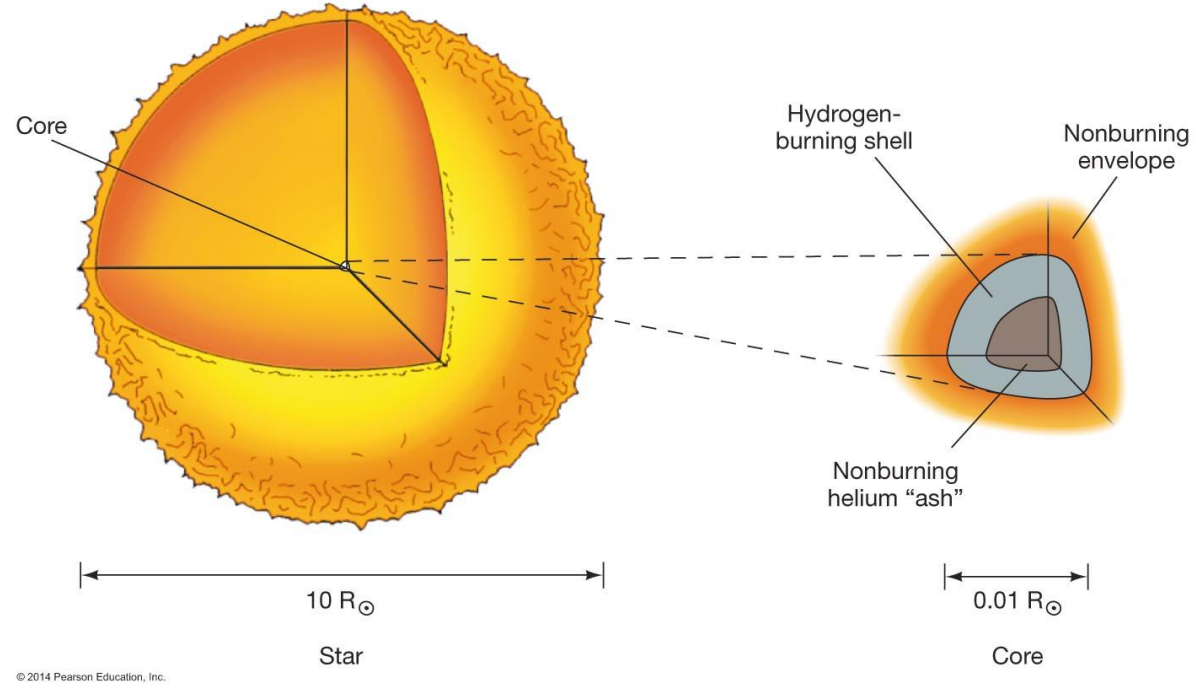
Brown Dwarf

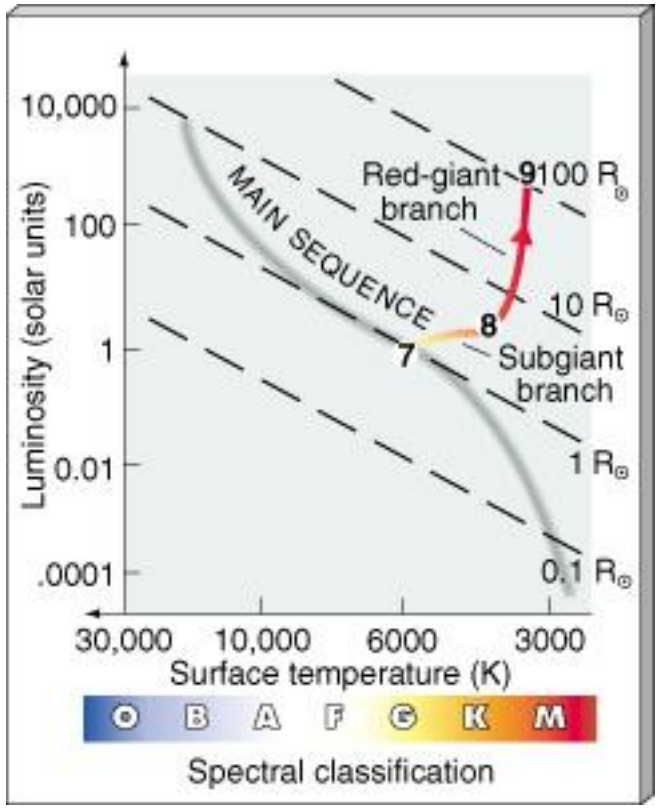


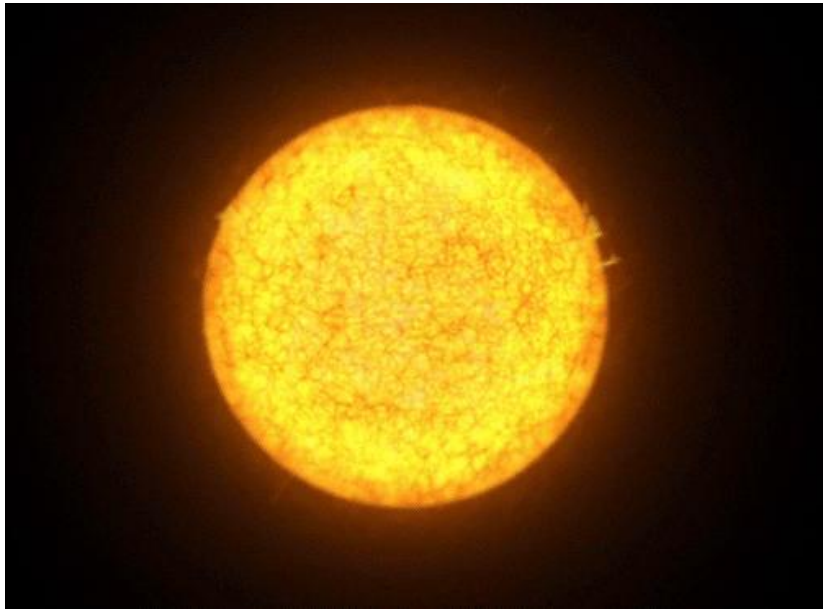


Gliese 299 B system

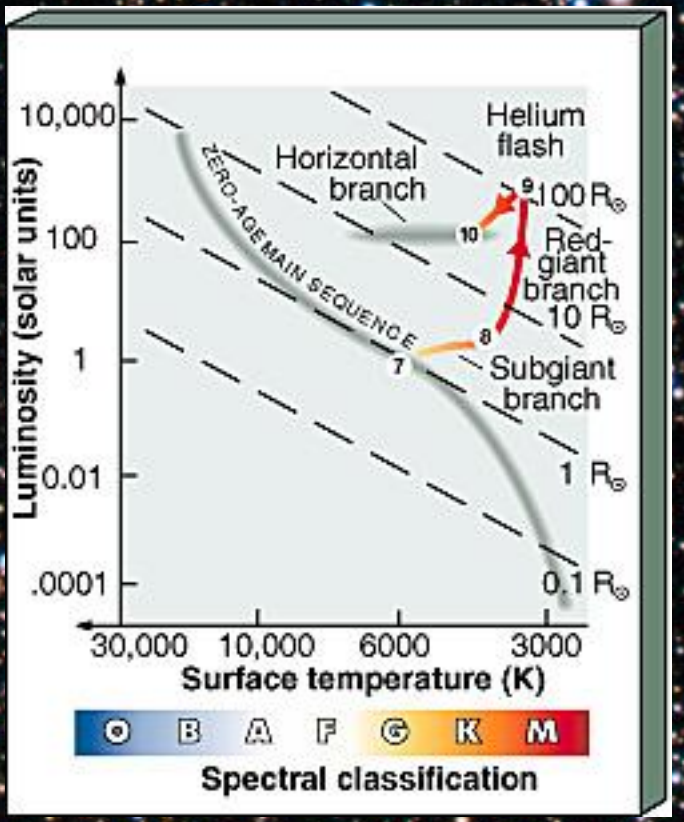
Stage 8 & 9


Core
Hydrogen-burning shell
Nonburning envelope
Nonburning helium "ash"
10 R⊙
0.01 R⊙
Star
Core
© 2014 Pearson Education, Inc.

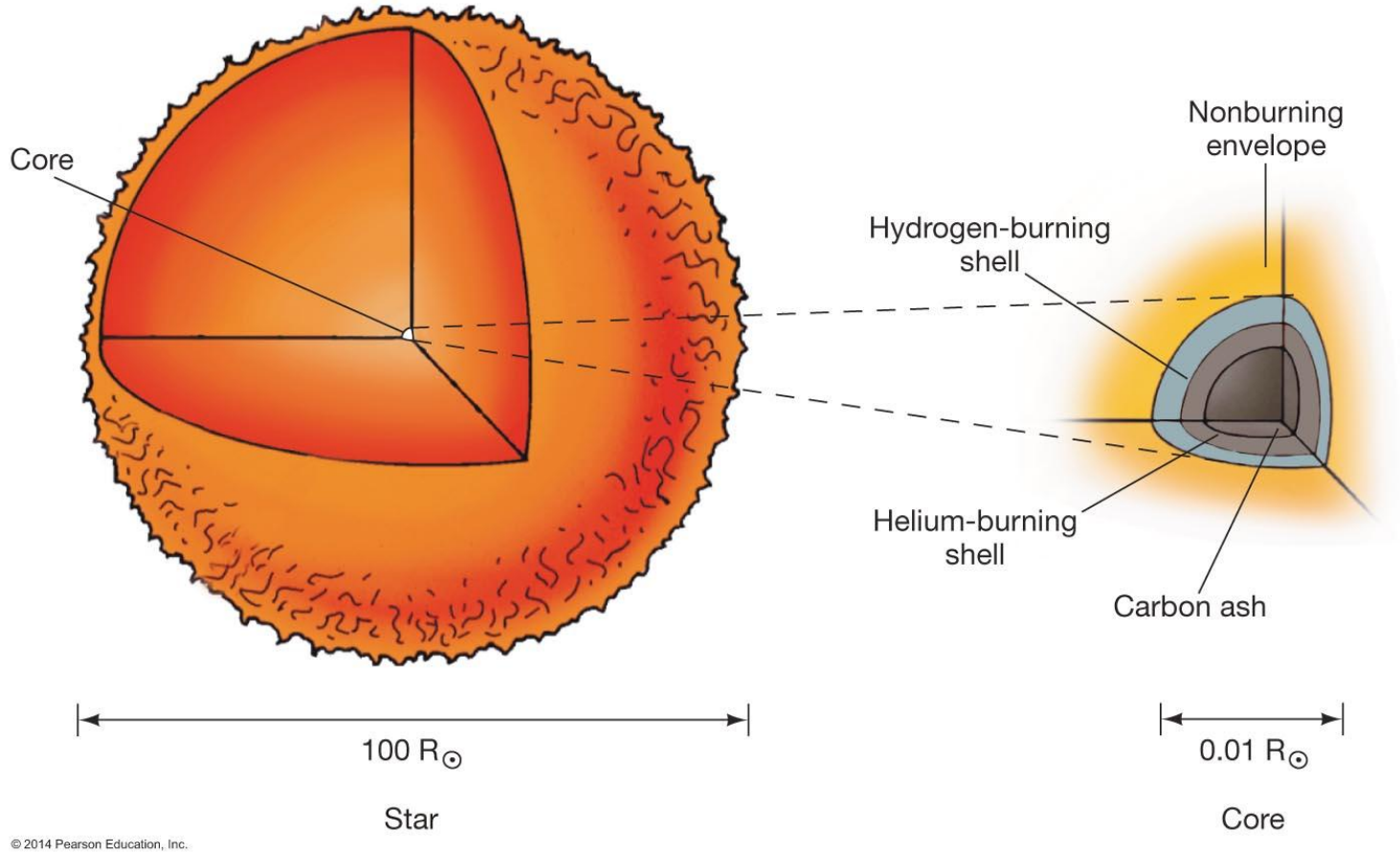

10,000
100
1
0.01
.0001
Luminosity (solar units)
MAIN SEQUENCE
Red-giant branch
9
100 R⊙
10 R⊙
8
7
Subgiant branch
1 R⊙
0.1 R⊙
30,000
10,000
6000
3000
Surface temperature (K)
O B A F G K M
Spectral classification

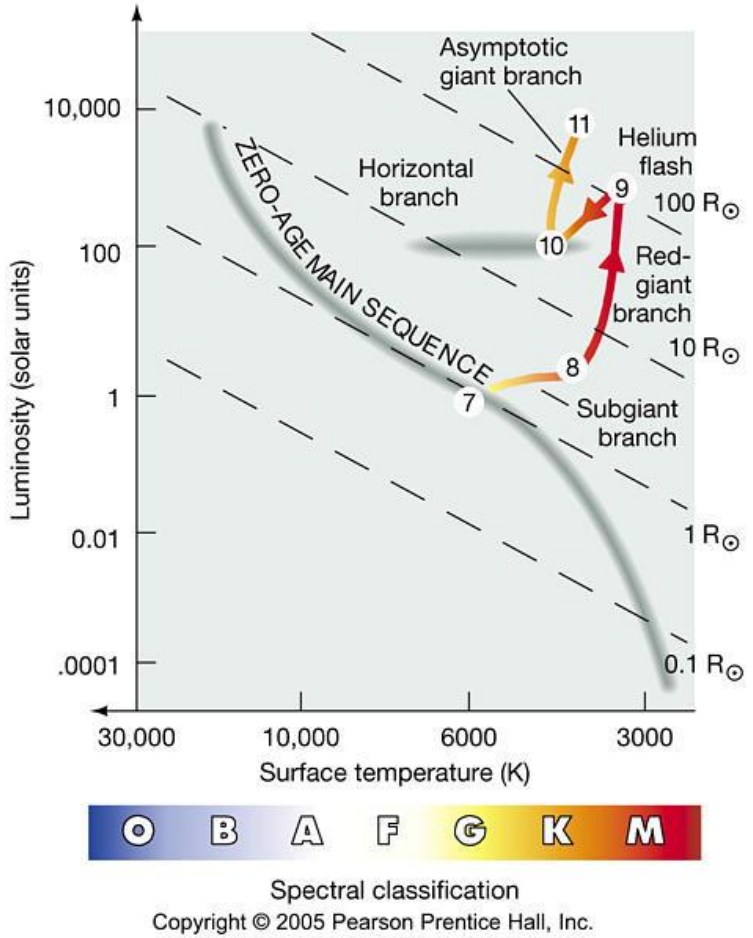


Stage : 10

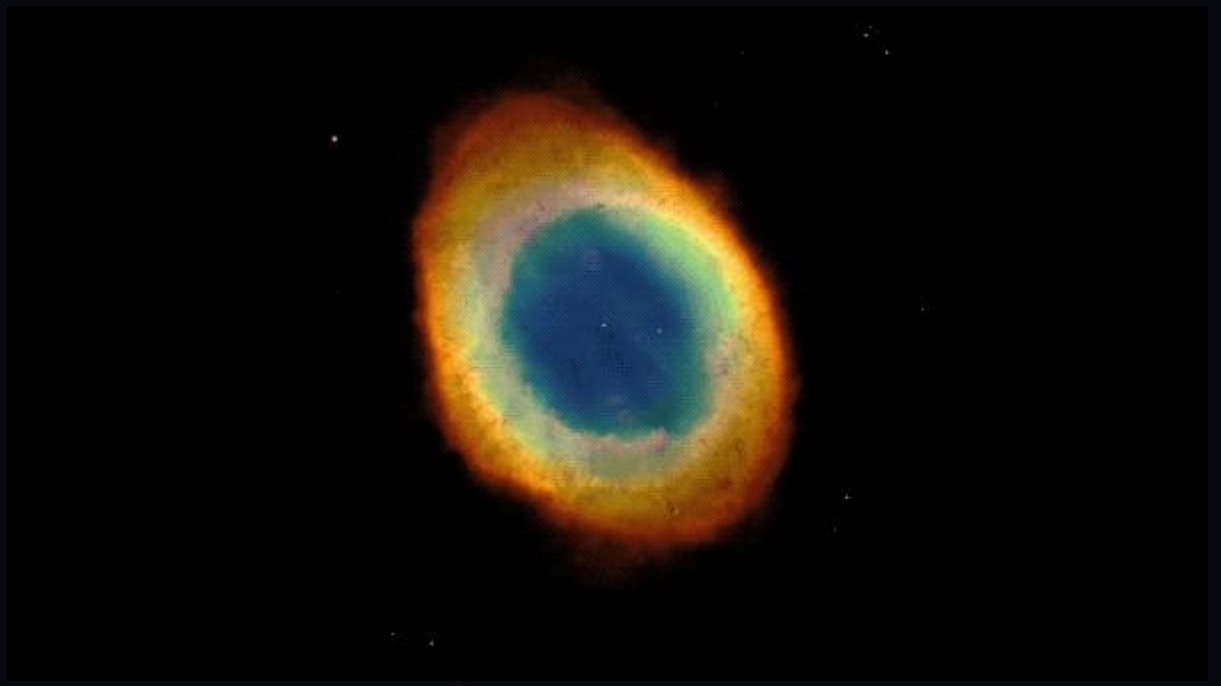

10,000
100
1
0.01
.0001
Luminosity (solar units)
Helium flash
Horizontal branch
ZERO-AGE MAIN SEQUENCE
100 R⊙
Red-giant branch
10 R⊙
Subgiant branch
1 R⊙
0.1 R⊙
30,000
10,000
6000
3000
Surface temperature (K)
O B A F G K M
Spectral classification

Stage : 11

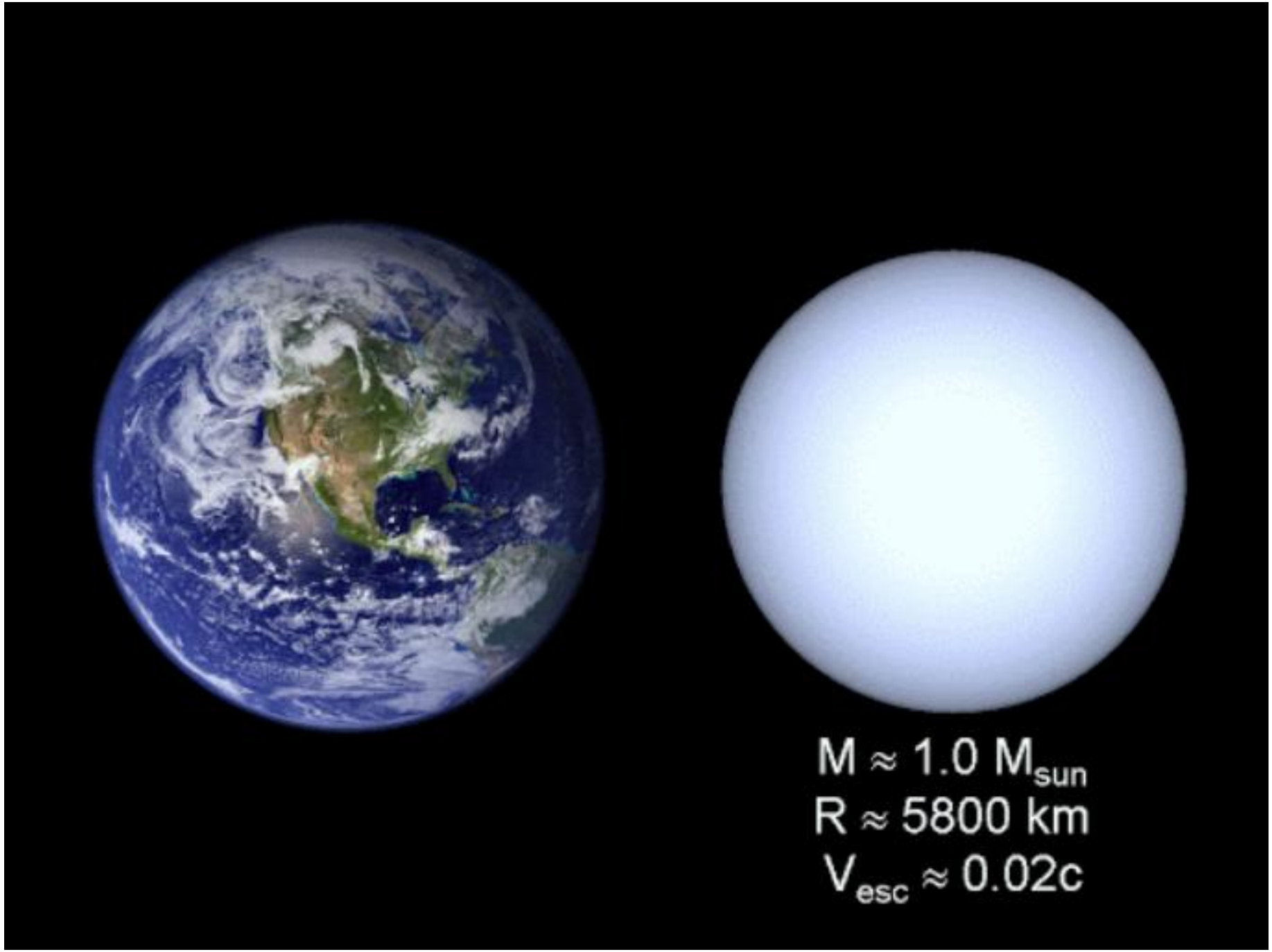




STAGE : 12

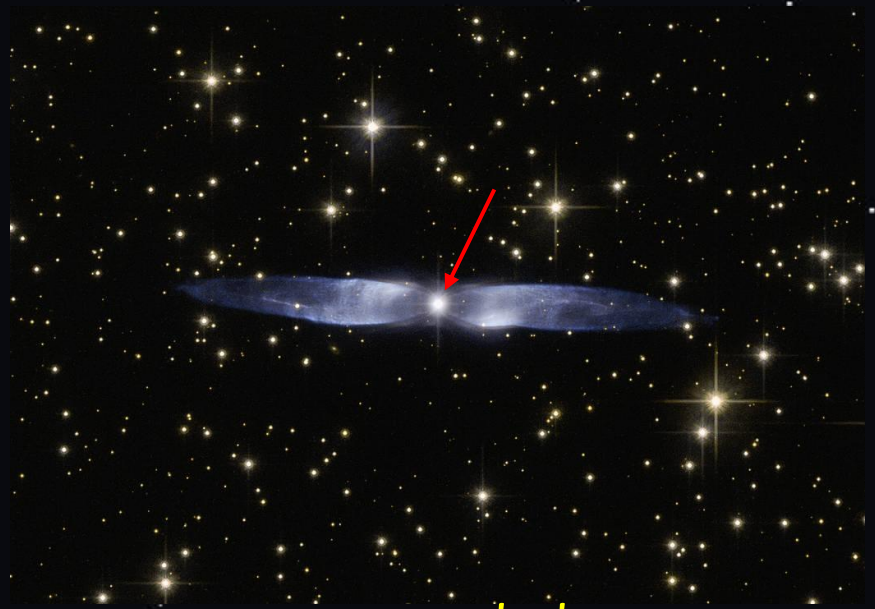


The God's eye / Helix nebula

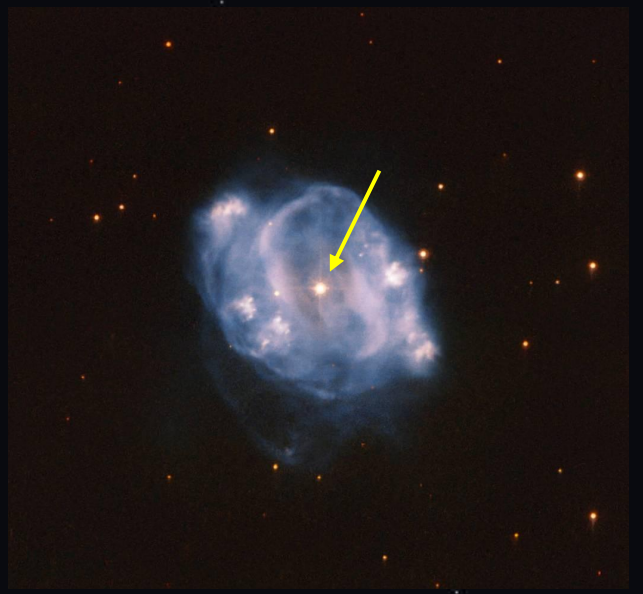


Pauli's principle comes to play at the dense core of the formed core, which prevents the electron to crush on each other, after a certain distance between them.

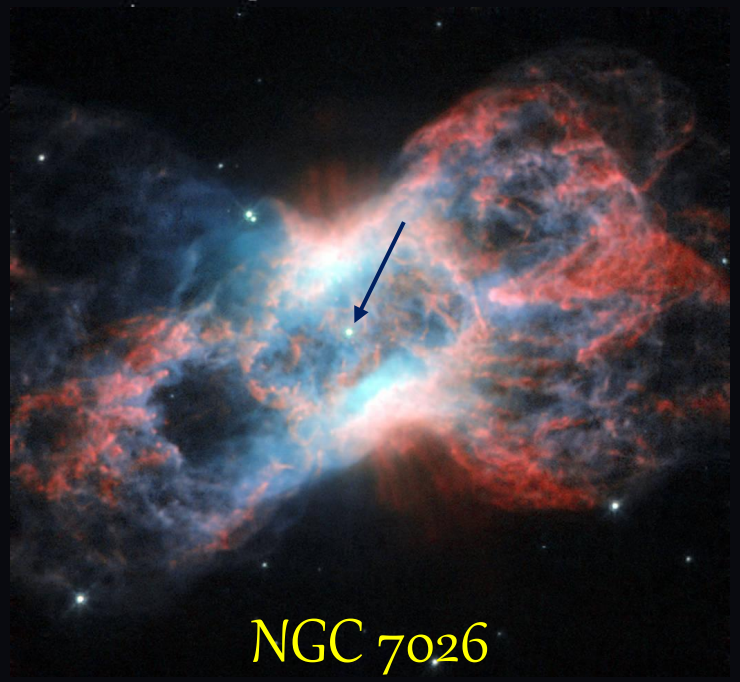
STAGE : 13 (A WHITE DWARF)



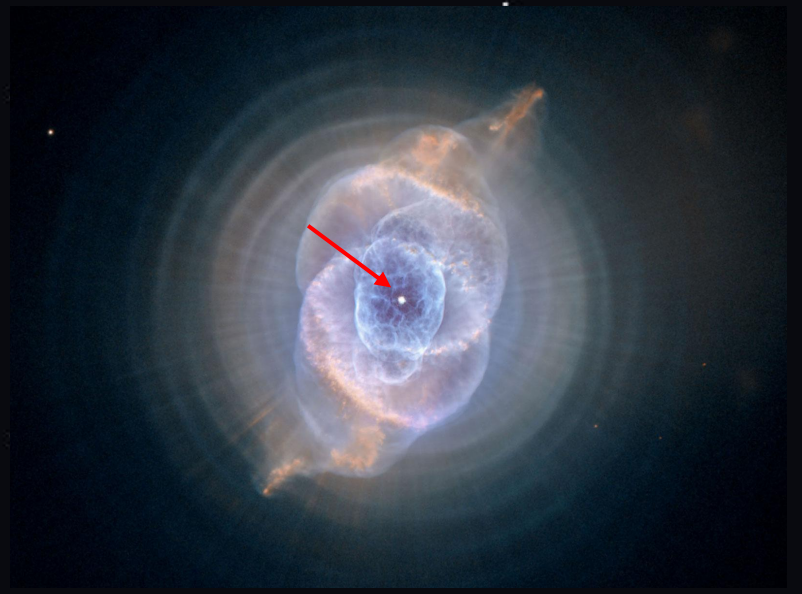
Twin Jet nebula



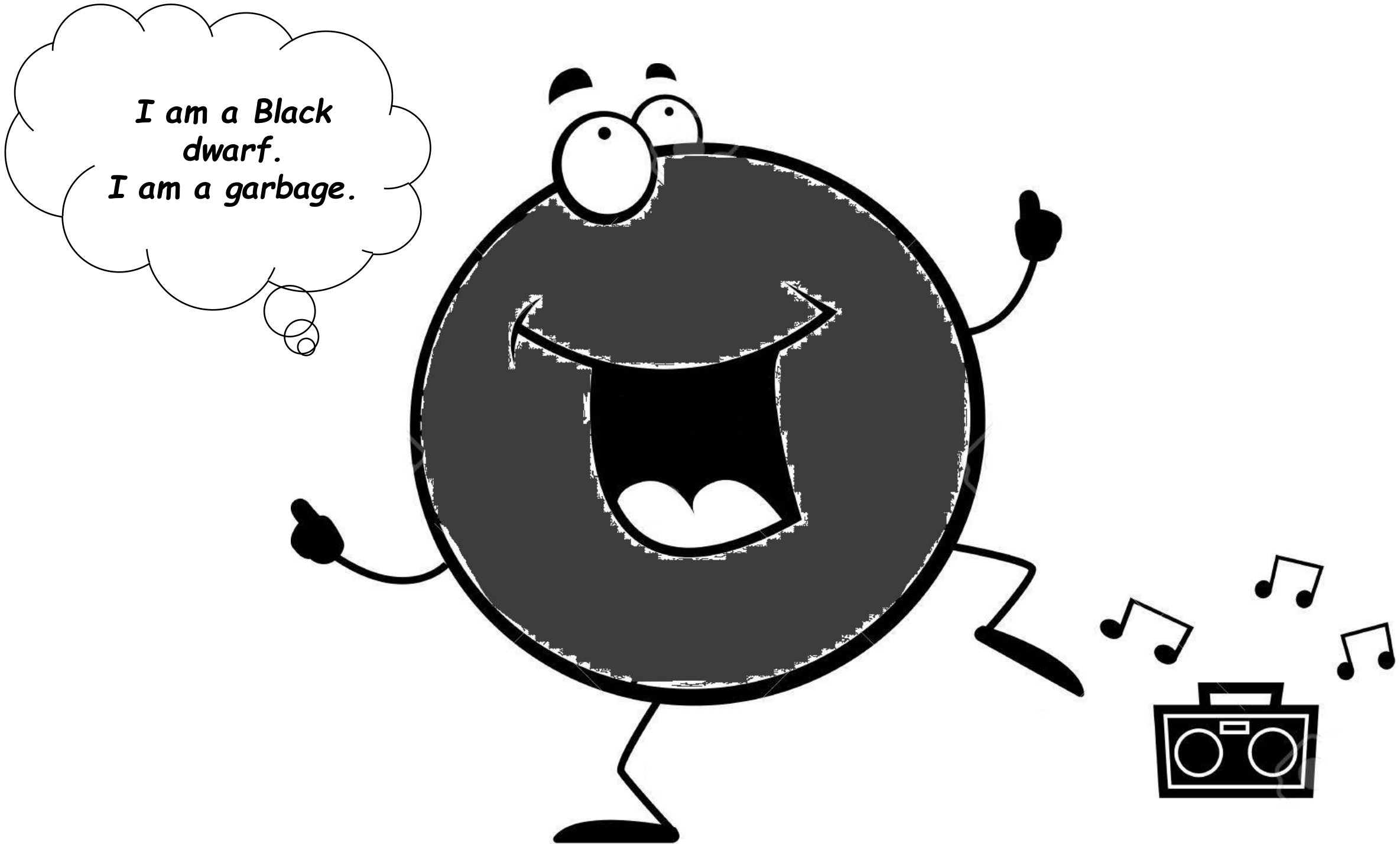
NGC 5307



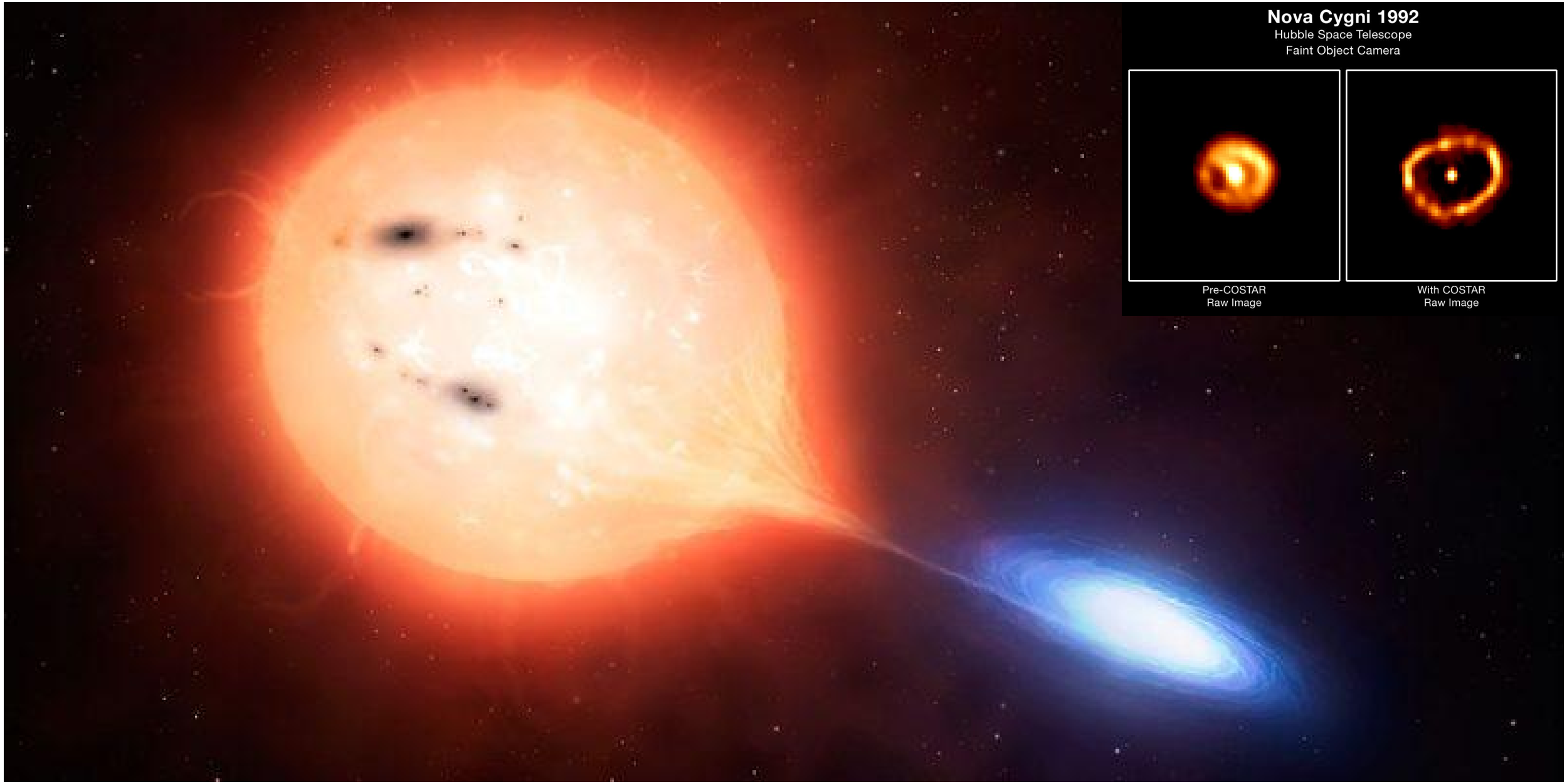
NGC 7026



Cat's Eye nebula


I am a Black dwarf.
I am a garbage.

A rare event Nova , from White Dwarfs




Thanks !