How is the Cycle of Star Life?

Most of the stars are stable, neither expanding nor retracted. Said then that these stars are in condition of equilibrium. Each point within the star maintains its temperature, pressure, density, and other contantees properties. They are continually evolving, but this evolution is so gradual and slow changes are not noticeable.

The gravitational attraction between masses in various regions within a star produces forces so severe that they tend to collapse the star toward its Center.

If the pressure inside a star were not large enough to balance the weight of its external parts, the stars are would get a little, making pressure more high to balance the weight.

A star is born inside a Nebula, which is a cloud of gas relatively cold and cosmic dust that forms a gravity field itself same.

This process of star formation, begins when the clouds start to shrink through the work of its own gravity, and thus, after a cosmic cloud material is sucked a very dense sphere is formed and its size varies depending on the amounts of matter forming the cloud, most of this in a home is hydrogen.

Protostar

As gas molecular cloud particles move each other, creates heat energy, which allows the formation of a group of hot molecules in the gas cloud. This group is known as "Protostar". Since the protostars are warmer than other materials molecule cloud, these formations can be seen with infrared vision. Depending on the size of the molecular cloud, it can form several protostars in a cloud. The protostar stage is the beginning of the life cycle of the star. A cloud of hydrogen gas, called a molecular cloud begins to turn due to the gravitational attraction of particles of hydrogen and dust that is in space. The thermal pressure and increase the heat cause the temperature of the cloud to increase. Once the temperature reaches around 15 million degrees Fahrenheit (8.333.315 ° C), a process called nuclear fusion occurs. The heat and rapid activity of molecules due to the heat, make cloud shrinks and becomes a stable material. Nuclear fusion makes the molecules of hydrogen to become helium molecules. This stage of the star life cycle lasts approximately 100,000 years.

T-Tauri

In the T-Tauri stage, the young star will start producing strong winds, which will push out the surrounding gas and molecules. This allows the star formation becomes visible for the first time without the help of other devices, such as infrared.

Main sequence

Once the material has been stabilized, the mass is called a main sequence star. The main stage of the sequence of a star lasting hundreds of millions of years. The balance of internal heat creating heat pressure and external gravitational pressure is key to the length of this stage of the life of the star. The amount of helium in the mass, the size of the star, determines the length of the main sequence stage. The Sun of Earth is a star of average size. To burn helium in the core of the star, the star begins to evolve to the next stage of the life cycle.

<u>Sequence post-principal</u>

A star that has passed the phase of post-principal sequence is constantly expanding due to consumption of helium and the pressure of the core of the star. As consumed the helium, the star becomes one of the few types of stars.

A lower mass star becomes a white dwarf. White dwarfs are stars hot and small, usually about the size of Earth, its brightness is very low. It is believed that white dwarfs are the residues present in the center of planetary nebulae. I.e., they are the core of low-mass stars that remain once the wrapper has become a planetary nebula. The core of a white dwarf consists of degenerate electron material. Without the possibility of having new nuclear reactions, and probably after losing its outer layers due to the solar wind and the expulsion of a planetary nebula, the white dwarf is collapsed due to the force of gravity. After that a star has become a white dwarf, the more likely it is that your destination is cool and lose luster. White dwarfs have low luminosity, they lose energy slowly, so you can stay at this stage in the order of 10.000.000.000 years. Once cooled it flying rocks, which are wandering the universe.

A medium-sized star becomes a red giant. A red giant occurs when a star burned its hydrogen supply and then combines helium at its core to produce larger, like carbon and oxygen atoms. While the star fuses helium, the outer layer expands and cools (while, at the same time, the inner core is made smaller and dense); This expansion is what gives the giant dwarf its name, since it increases its size, while the cold materials give it its distinctive shade of red. Its outer material eventually escape from the gravity of the star and will dissipate in a Nebula, where the material will be eventually used to form new stars.

With higher mass stars become supernovas. The biggest stars 10 solar masses passing through the red giant stage; However, they have enough gravity to continue combining oxygen and carbon in larger items, and skipping the phase of white dwarf in stellar evolution. After a star produces iron at its core, a supernova is likely occurring, which causes an interstellar explosion whose nucleus ejects its material in waves. The remnants of a supernova can form a black hole, which is a point with a gravity that is very dense, in which nothing can escape you.

A neutron star is a star formed by neutron packaged with the same density as in an atomic nucleus. I.e., a neutron star is like a giant atomic nucleus. Neutron stars are formed as a result of a supernova. During the explosion of a supernova remnant core density is so great that so form a neutron star or a black hole.

There is a limit to the size of neutron stars, masalla which these bodies are forced to contract until they become a black hole, which can not escape no radiation. Typical stars like the Sun can persist for many billions of years. The final destination of the Dwarfs from low mass is unknown, except that cease to radiate appreciably. The more likely it is that they become ceizas or black dwarfs.

The so-called black holes are bodies with a very big, huge gravitational field. Cannot escape no light or electromagnetic radiation, why are black. They are surrounded by a spherical boundary that allows light between but not exit.

There are two types of black holes: bodies of high density and low mass concentrated in a very small space, and bodies of low density but very large mass, as in the centers of galaxies.

Stephen Hawking and the light cones: the British scientist Stephen W. Hawking has devoted much of his work to the study of black holes. In his book history of the time explained as a star that is this collapsing, the light cones that emit begin to sag in the surface of the star.

"To be small, the gravitational field grows and light cones are inclined more and more, until now cannot escape." The light turns off and turns black. If a component of a binary star becomes a black hole, taking his partner material. When Eddy comes to the hole, he moves so fast that it emits x-rays.

So, although you can not see, can be detected by their effects on nearby matter.

Black holes are not eternal. Although no radiation does not escape, it seems that they can do it some Atomic particles and sub atomic.

Someone who observed the formation of a black hole from the outside, would be a star increasingly more small and Red until, finally, it would disappear. Its gravitational influence, however, would remain intact."

As occurred in the bigbang, also in the black hole is a singularity, i.e., the laws of physics and the ability to forecast fail. In consecencia, any outside observer, if any, could see what happens inside.

The equations that attempt to explain a singularity as which occurs in black holes, have to take into account the space and time. Singularities is always located in the past of the observer (like the bigbang) or in the future (such as gravitational collapses), but never in the present. This curious hypothesis is known with the name of cosmic censorship.

Collapse

A collapse of a star is the end of the life cycle of the star. A star collapse when the kernel no longer has any type of nuclear fusion or molecular reactions and the outer layers are still be burning. A nova is the end of a star that explodes when the core collapses when the pressure of the outer layers of the star is not counterbalanced by the pressure of nuclear fusion at the core. This occurs when the core ceases to burn faster than the outer layers. A supernova is this kind of collapse only on one larger scale, as with the highest mass stars have expanded so far the core collapse burst is brighter than the collapse of a white dwarf that has been slowly burning all its helium.

This process can be studied through the h-r diagram

Between 1911 and 1913 Dutch EjnarHertzprung and the northamerican Henry N. Russell conducted completely independently the discovery that would then be appointed as HR diagram.

Placed on a graph the stars more close with what you could meet its distances with some reliability, representing on the axis of order their relative brightness compared to the Sun and in abscissa absolute temperature of its surface.

This diagram demonstrates a progression between star dwarfs, yellow and cold, going up until you reach the canterell red and blue hot, and more large.

The region that predominates is a diagonal from the upper region left (hot and bright stars), to the right lower (Star cold and less bright).

Away from this region the white dwarf (bottom left) and the red giants and canterell (upper right corner) are

Is saying that the star most bright and hot type or, then follow the B and end up with the most weak and type M. frias Each lyrics is subdivided from 0 to 10 for intermediate values of luminosity and temperature. According to this, a star of high light intensity may be called O9, while one of very low intensity would be M0.

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