

A New Explanation for the Nature, Structure and Different Types of Black Holes

Gh. Saleh

Saleh Research Centre, Netherlands

A black hole is an object in the Universe where gravity is so extreme which escaping from that is impossible. Most black holes have been discovered by using the effects of their gravitational fields, and scientists have so far been unable to provide a structure for black holes due to the inability of particles escaping from black holes.

Since black holes were discovered, scientists have been searching for their structure and ways of creation. By knowing that the density of a black hole is extremely high, like protons (10^{18} kg/m^3), we can conclude that in a black hole there is a compact set of protons and neutrons that could create such a high density. Taking into account that a black hole has a surrounding area we should imagine that this area could be like an ocean of electrons, protons and neutrons. One can also imagine the black hole as an extremely large atom whose nucleus is made of protons and neutrons and the electrons revolving around it are ocean of electrons, protons and neutrons. But another mysterious about the black hole is its different types. Considering that our universe is about 14 billion years old and there are galaxies whose lifetime is about 13 billion years, it can be concluded that their core, black holes, was formed at the beginning of the Big Bang. In fact, initial black holes are a part of the initial Big Bang that has the ability to create black holes with a density of about 10^{20} kg/m^3 . For more explanation, we note the following contents:

- A. Objects whose density is between 0 to 10^6 kg/m^3 . Those include all types of elements and atoms.
- B. Matters whose density is between 10^{14} to 10^{20} kg/m^3 , such as black holes, white dwarfs and magnetars.
- C. Big Bang globe whose density is about 10^{42} kg/m^3 .

Accordingly, there must be matters whose density is between 10^{20} and 10^{40} kg/m^3 , which are lost and unknown for us. Therefore, there are separated components from the Big Bang that have the density of 10^{40} kg/m^3 . During the explosion of the Big Bang, all the types of different matters, including black holes, are created. In fact, the explosion of the Big Bang could create 3 types of black holes:

1. Regular black hole: black holes with an average density of 10^{20} kg/m^3 .



2. Super black hole: black holes whose average density is about 10^{26} kg/m^3 .



3. Meta black hole: black holes whose average density is about 10^{32} kg/m^3 .

For example:

The Milky Way galaxy has a regular black hole at its center, the Andromeda galaxy has a super black hole at its center and the Pleiades, whose central galaxy has a Meta black hole at its center.

Therefore, black holes can be formed through two possible processes: the explosion of the Big Bang or the death of stars with sufficient mass. As a result of the explosion of a star, an impact is created and the released energy throws out the electrons of star's atoms. As a result, a collection of protons and neutrons accumulates at its center and creates a dense mass known as a black hole. In fact, the central structure of black holes consists of a collection of protons and neutrons, while their outer structure can be a sea of electrons.

In simple terms, black holes can be thought of as cosmic devourers that absorb everything in their vicinity, including stars, particles, etc. Since “for every action in nature there is an equal and opposite reaction”, the process of absorption on the one side creates a definite possibility of the output on the other side. Heavier particles such as protons and neutrons remain in the center of the black hole, while other particles like electrons and photons are exited from the other side. This escaping phenomenon of particles from a black hole is known as a white hole. In fact, the balance of absorption and expulsion reactions creates stability and order within the black hole, ensuring its longevity and structural integrity. Considering that this is the natural structure of a black hole, a certain percentage of what it absorbs is ejected. Approximately 40% of the output consists of photons, 30% electrons, and few amount of protons and neutrons.

