

Black hole as a philosophical monstrosity

Sjaak Uitterdijk

Abstract- It is embarrassing for physical science that it can be demonstrated in a very easy philosophical way why black holes have nothing to do with real physics.

Argumentation

Copied from reference [1]:

“A black hole is a region of space-time where gravity is so strong that nothing — no particles or even electromagnetic radiation such as light — can escape from it.”

Comment

If a photon would be a particle it would, by definition, have mass. A photon propagates in vacuum, by definition too, with the velocity of light. According to Einstein's theories of relativity such a photon must have an infinite mass, as generally accepted by supporters of these theories. See also chapter VIII of [2].

Based on Einstein's theories of relativity the first conclusion must be that a photon is not a particle.

Consequently “electromagnetic radiation such as light” is massless.

Based on the definition of gravity, the second conclusion must be that gravity, of whatever strength, cannot affect electromagnetic radiation.

Reference [3], written by Hawking, states about black holes:

“The work that Roger Penrose and I did between 1965 and 1970 showed that, according to general relativity, there must be a singularity of infinite density, within the black hole.”

Copied from reference [1] too:

“Black holes of stellar mass form when massive stars collapse at the end of their life cycle. After a black hole has formed, it can grow by absorbing mass from its surroundings. Supermassive black holes of millions of solar masses (M_{\odot}) may form by absorbing other stars and merging with other black holes. There is consensus that supermassive black holes exist in the centres of most galaxies.”

Comment

The highest possible mass density in real physics is the one of a proton or neutron: about $5 \cdot 10^{17}$ kg/m³.

Given the maximum possible mass density in real physics, black holes must be composed of magic matter, which contradicts their alleged formation.

References

[1] https://en.wikipedia.org/wiki/Black_hole

[2] <https://vixra.org/abs/2107.0027> Physics Since Einstein

[3] Hawking S. W. The Theory of Everything, The Origin and Fate of the Universe