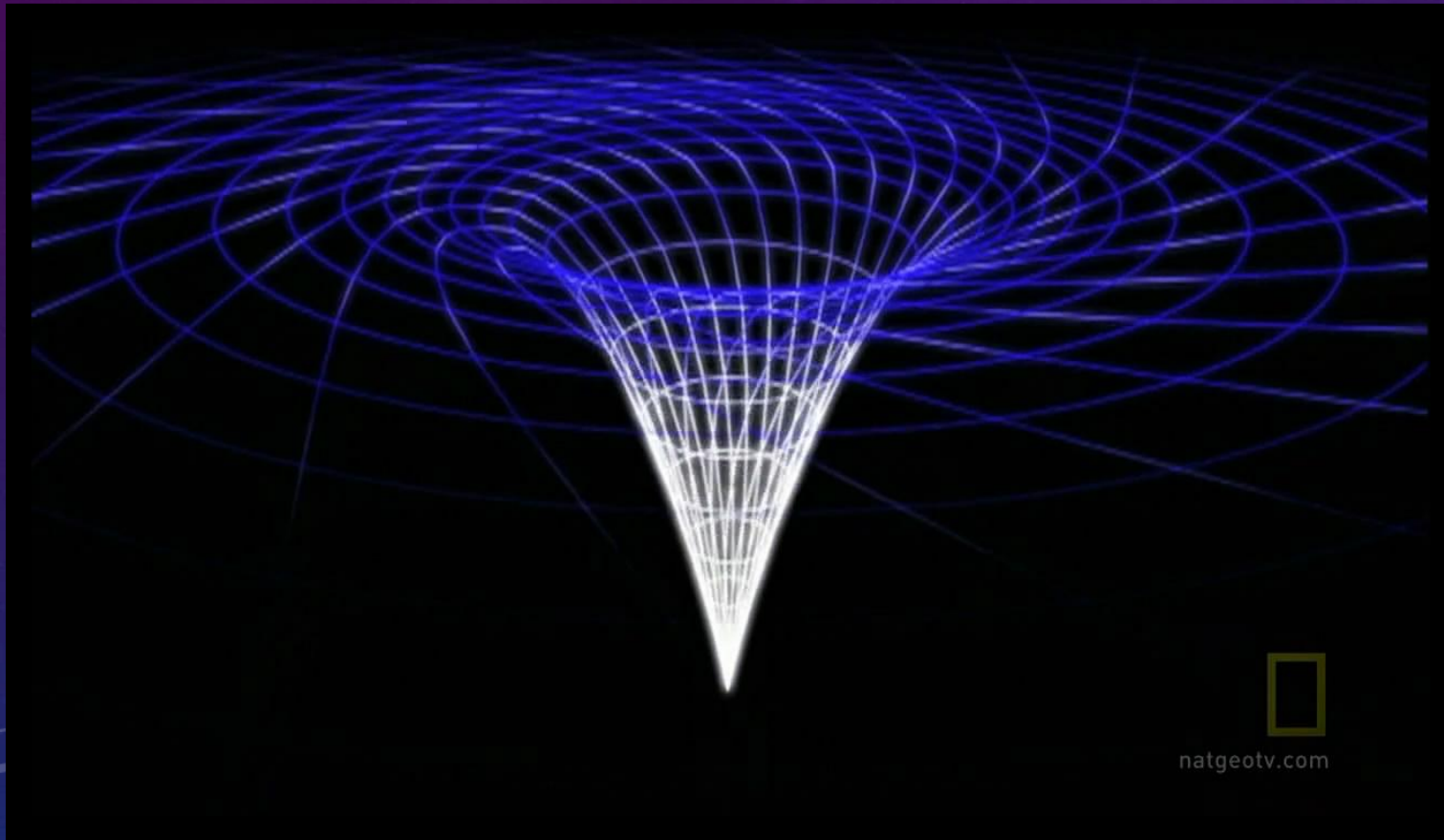




BLACK HOLE

WHAT IS A BLACK HOLE?



A black hole is a region of space-time, the gravitational attraction of which is so great that even objects moving at the speed of light, including quanta of light, can not leave it. The boundary of this region is called the event horizon, and its characteristic size is called the gravitational radius.

WHO SUGGESTED THEIR EXISTENCE?

Theoretically, the possibility of the existence of such regions of space-time follows from certain exact solutions of the Einstein equations, the first of which was obtained by Karl Schwarzschild in 1915. Previously, such astrophysical objects were called "collapsed stars" or "collapsars", as well as "frozen stars". The exact inventor of the term is unknown, but the designation was popularized by John Archibald Wheeler in 1967.



HOW ARE BLACK HOLES FORMED?

In total there are 4 scenarios for the formation of black holes:

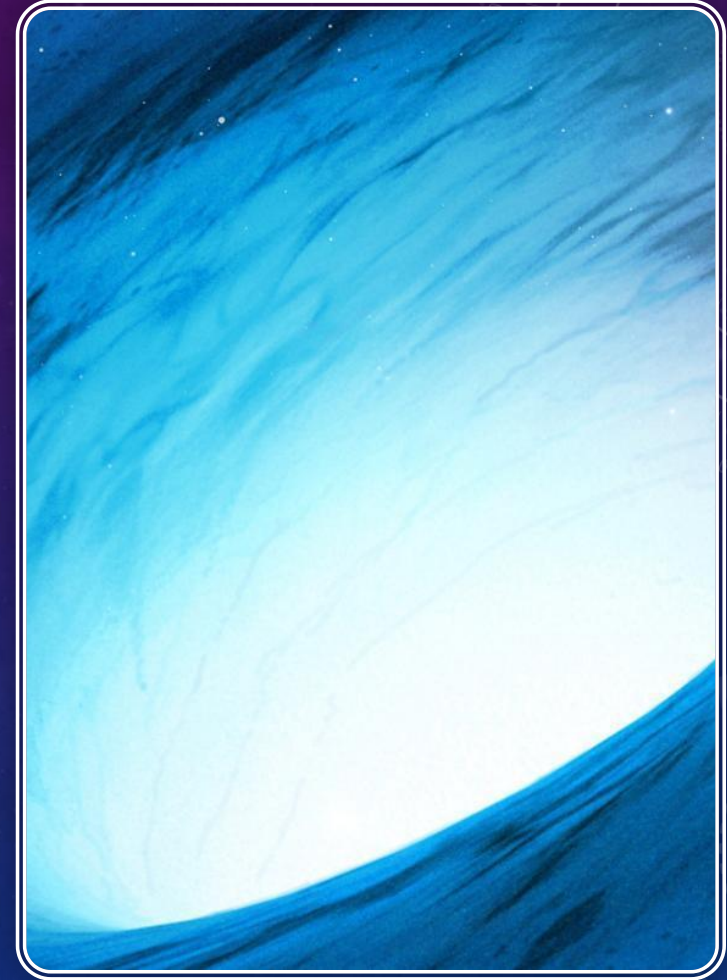
- a gravitational collapse (compression) of a rather massive star
- collapse of the central part of the galaxy or protogalactic gas
- the formation of black holes immediately after the Big Bang (primary black holes)
- the appearance in high-energy nuclear reactions



WHAT HAPPENS IN A BLACK HOLE?

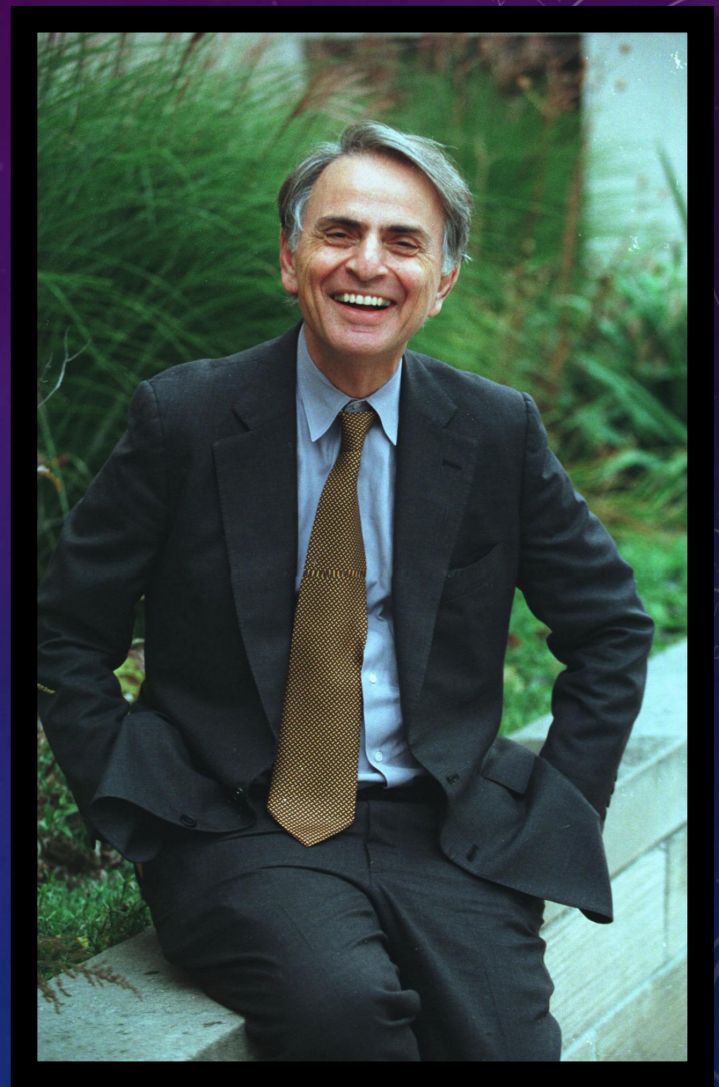
Scientists do not know what happens inside a black hole. For equations of the general theory of relativity, there are solutions that allow you to fall into a black hole and exit somewhere in another place from a white hole.

A white hole is a black hole that has been reversed, an object from which you can exit, but can not be reached.



«Black holes can become passes at any time. If we had to jump into a black hole, it is assumed that we would have appeared in another part of the universe and in another time period ... Black holes can be the gateway to the Wonderland. But are there Alice and white rabbits?»

Carl Sagan



(1934 – 1996)

American astronomer,
astrophysicist and outstanding
popularizer of science.