Limit Velocity and Black Holes

Zygmunt Morawski

Abstract: The space without any time dimension has been shown. The connections between such a space, space interval, velocity and tunnel effects have been presented.

The change of metric $+\,+\,+\,+\,-$ to $-\,-\,-\,-\,+$
or $+\,+\,+\,+$ to $-\,-\,-\,-$

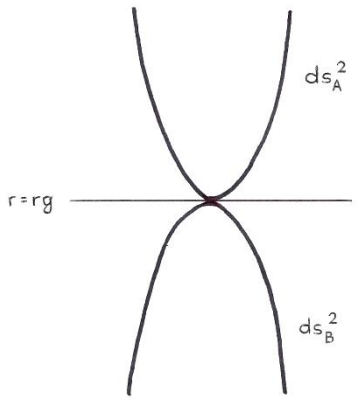
for $r = rg$ during the passage through the event horizon and an entrance to the black hole corresponds to the change $ds^2 > 0$ to $ds^2 < 0$.

It means that in the case of these metrics the coordinates inside the black hole are complex and $> c$.

$$ds_A^2 = x_1^2 + x_2^2 + x_3^2 + x_4^2$$

$$ds_B^2 = -x_1^2 - x_2^2 - x_3^2 - x_4^2$$

The parabola turned up corresponds to ds_A^2 and the parabola turned down corresponds to ds_B^2 .



The figure shows $r = rg$, the point of tunneling [1].

The parabola means the dimensions of the space; $ds_B^2 < 0$ means complex coordinates and $> c$.

Reference:
[1] G. W. Gibbons, Physics Letters B, 382 (1996) p. 33-59.