

Black Holes

Physics

What the event horizon is, and what it is not.

The event horizon lies where the escape velocity reaches the speed of light.

$$r_s = 2GM/c^2$$

The Sun

If compressed.

About 3 km

Earth

About 9 mm

Sagittarius A*

Milky Way centre.

About 12 million km

THE COMMON MISTAKE

✗ **Picturing the horizon as a solid surface**

✓ **It is a one-way boundary**

A large enough black hole lets an infalling observer cross the horizon without noticing anything locally unusual.

Tidal forces, not the horizon, are what destroy an infalling object — and they are gentler for larger black holes.