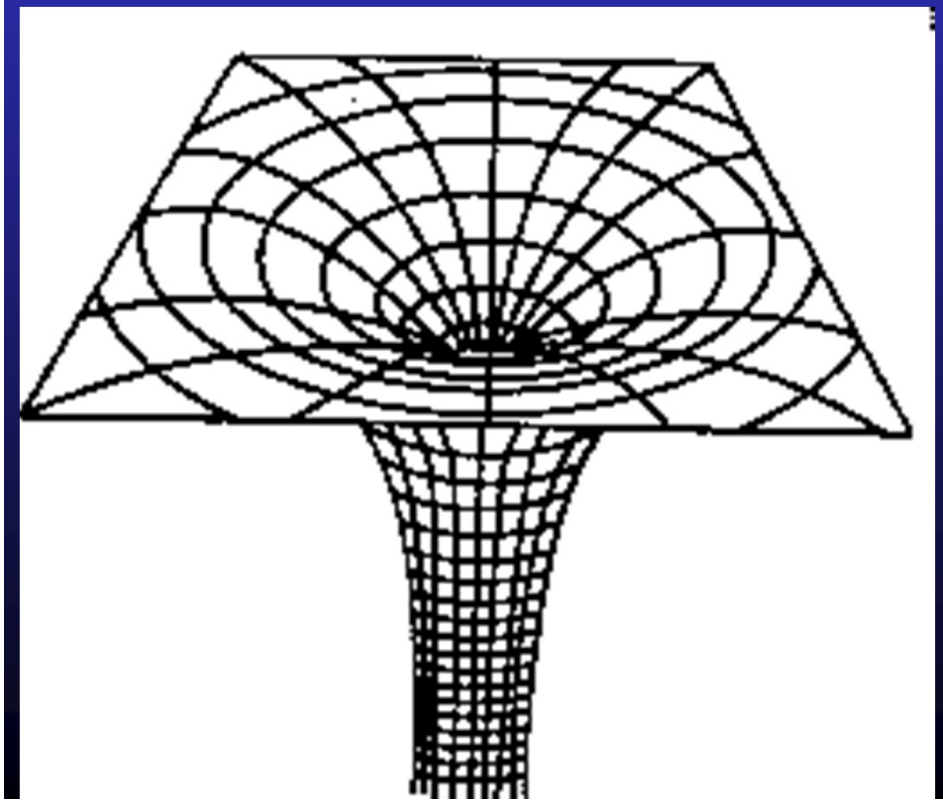
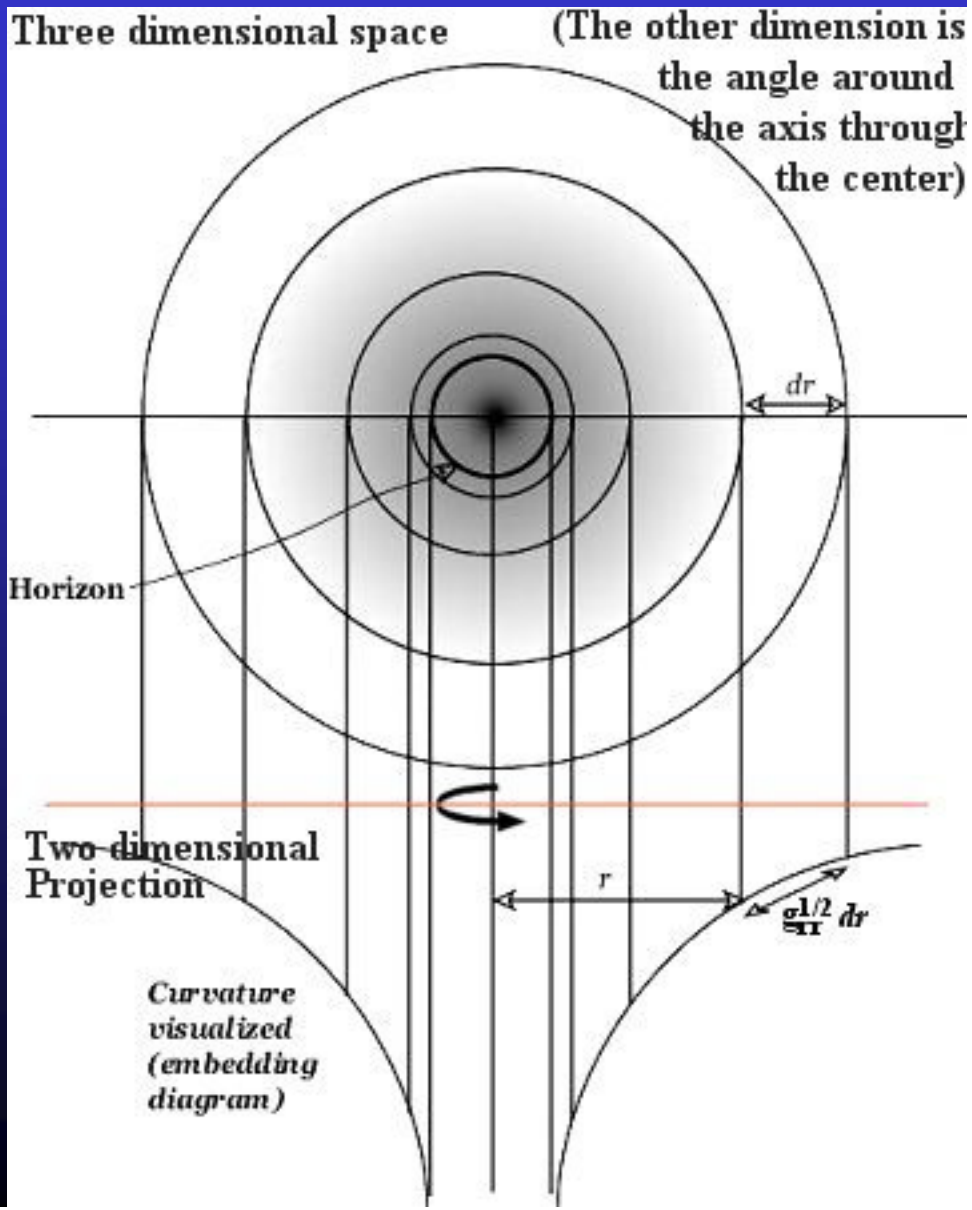
Embedding diagram

- $dR = (1-2GM/c^2r)^{-1/2}\ dr$
- $dR > dr$ so tilt
- $dR \rightarrow \infty$ as $r \rightarrow R_s$



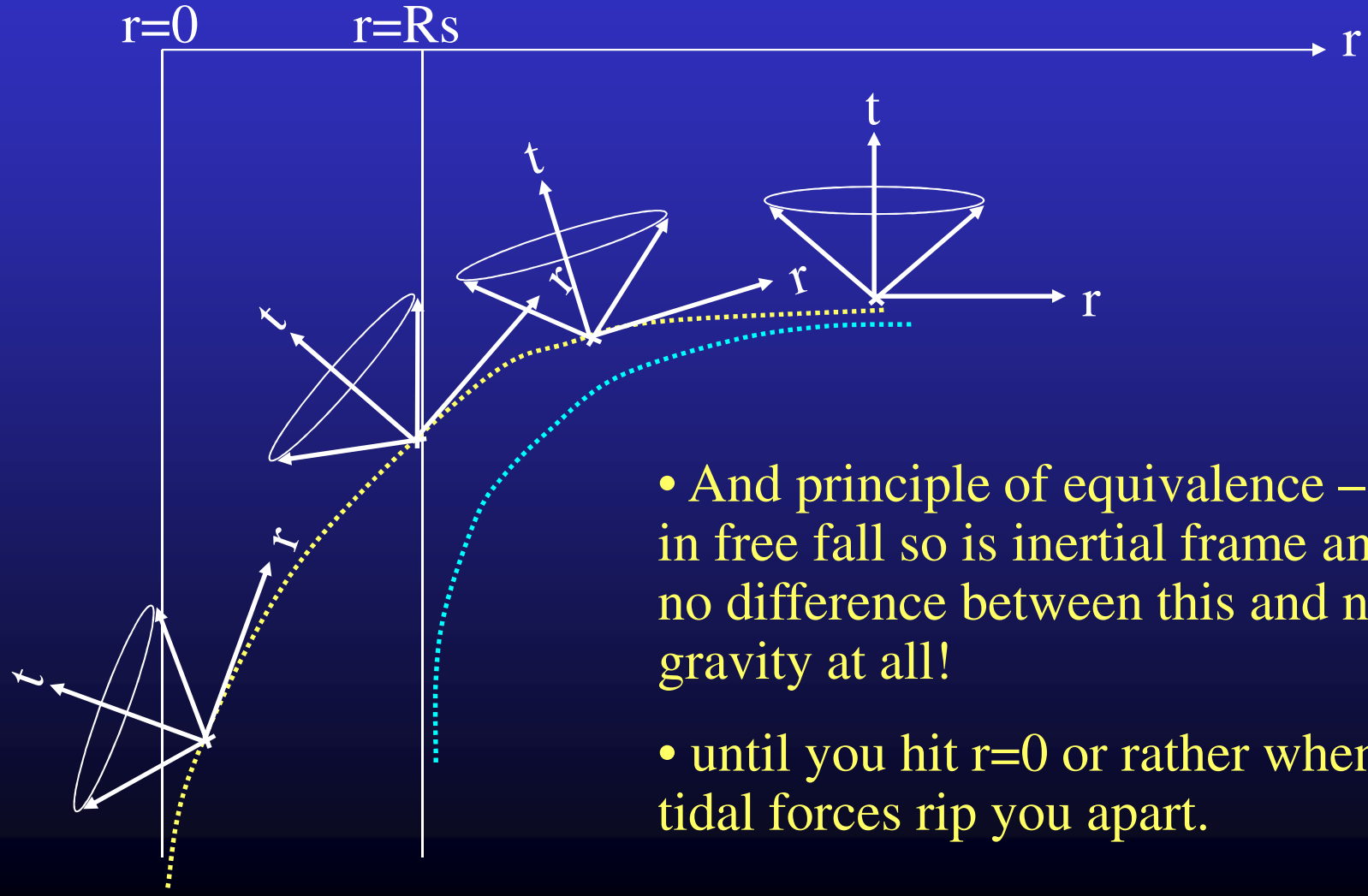


Event horizon

- Embedding diagram has infinite throat at $r=R_s=2GM/c^2$
- BUT this assumed you can measure a length dR
- Below $R_s=2GM/c^2$ real paths MUST have a spatial term (now +ve) to offset the dt (now –ve) term. So no such thing as stationary observers at or below horizon.

Event horizon

• Embedding diagram shows dR not spacetime (Riemann) curvature. True curvature $\rightarrow \infty$ at r=0 and is finite (though large) at $r=R_s$



• And principle of equivalence – in free fall so is inertial frame and no difference between this and no gravity at all!

• until you hit r=0 or rather when tidal forces rip you apart.