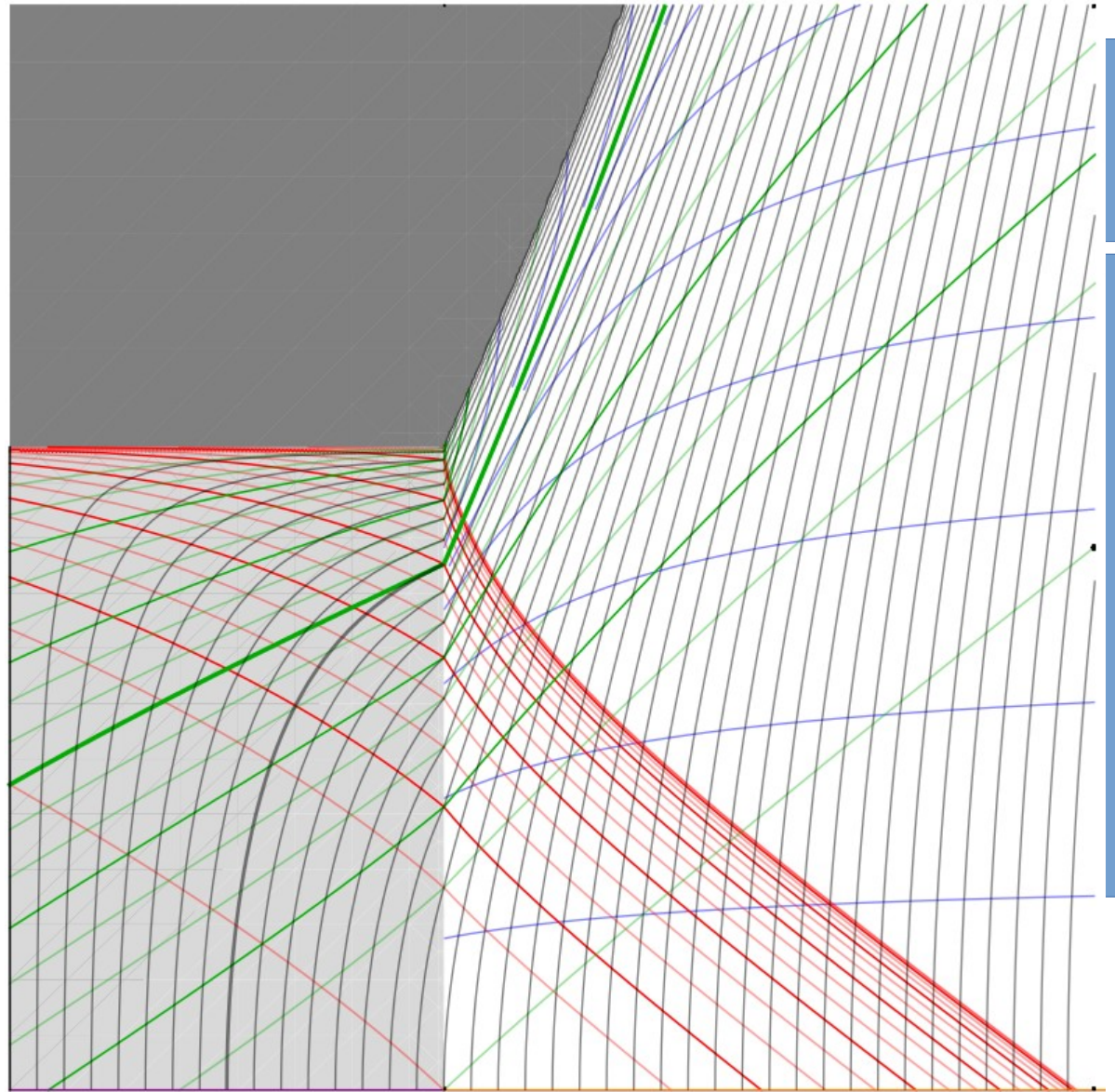
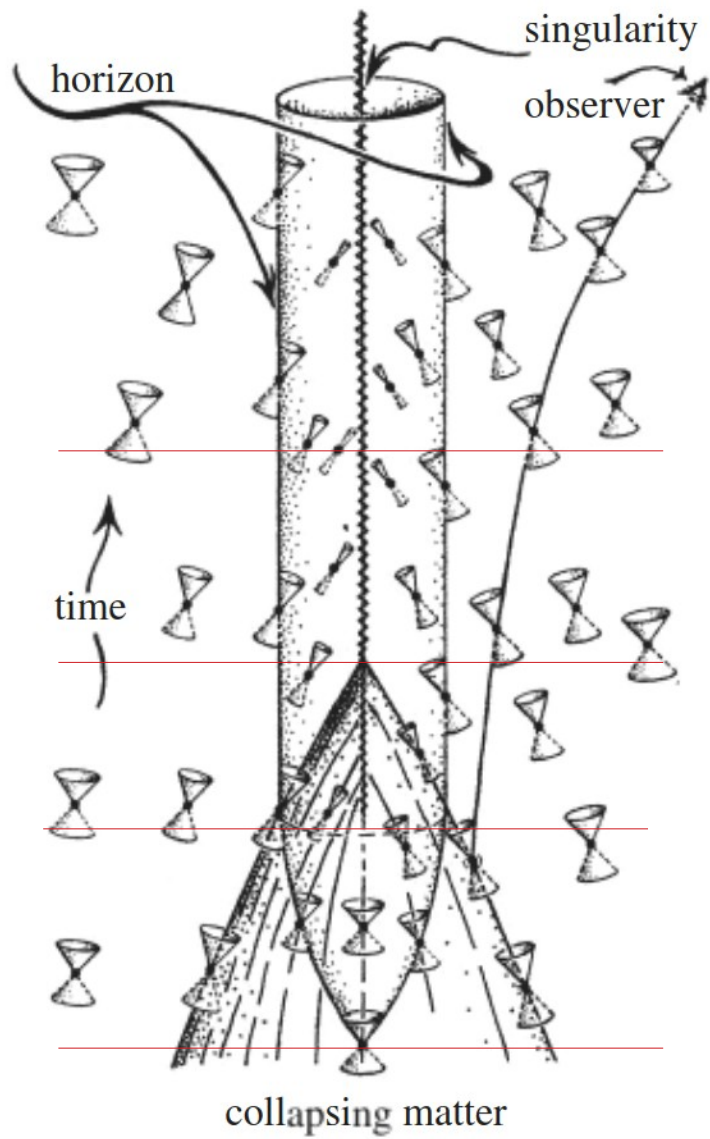


Oppenheimer & Snyder model of spherical dust ball collapse. On the vertical axis, the proper time at clocks passing through given event. The clocks follow geodesics initially at rest in the $k = +1$ maximum $a = a_{\max}$ of the FLRW spacetime or having $\dot{r}(\tau = 0) = 0$ in the external Schwarzschild spacetime. Left: On the horizontal axis the circumferential radius $a(\tau) \sin \chi$ in FLRW or Schwarzschild radius of given event. Right: On the horizontal axis we use the maximal circumferential radius each observer/clock carries as label. Red (green) curves are ingoing (outgoing) null worldlines, gray curves indicate constant circumferential radius and blue curves show constant Schwarzschild time. (Figures from Bc. thesis by L. Honsa.)



Problem: Draw in the right figure the hypersurfaces indicated in the left plot (drawn by R. Penrose).