



Figure 1: On the left panel, we depict the Penrose diagram for the case with $\pi/2 < \tau_0 < \pi$ where P denotes the observer's patch at $\theta = 0$ and P' its complementary patch. The shaded region describes the timelike envelope of an observer from τ to τ_0 . On the right, we depict the case with $\tau_0 > \pi$ where the observer at $\theta = 0$ can see the entire Cauchy slice.