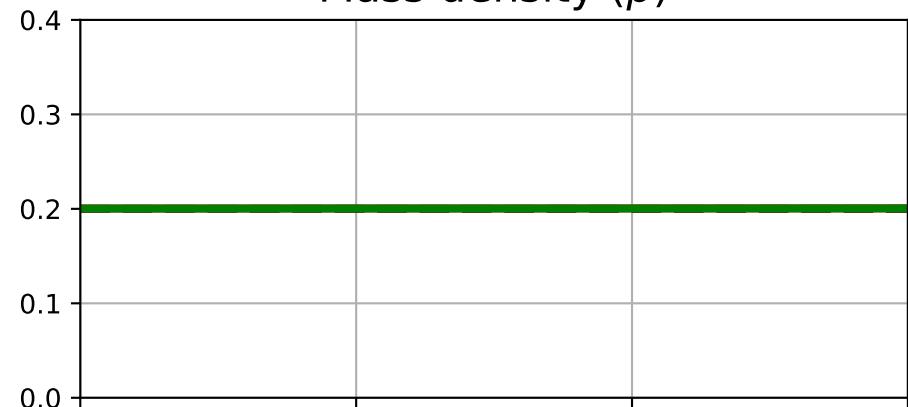
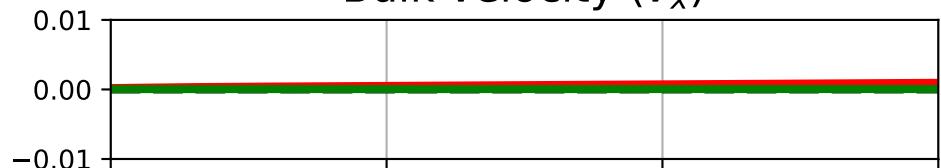


# BKW solution ( $\Lambda = 0.31$ )

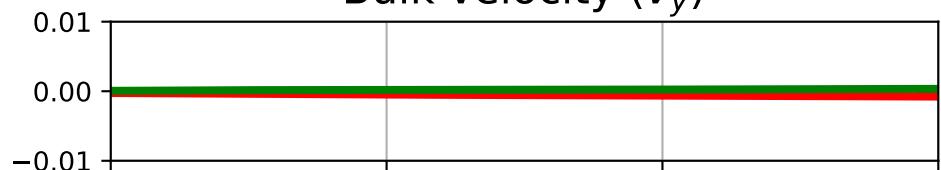
Mass density ( $\rho$ )



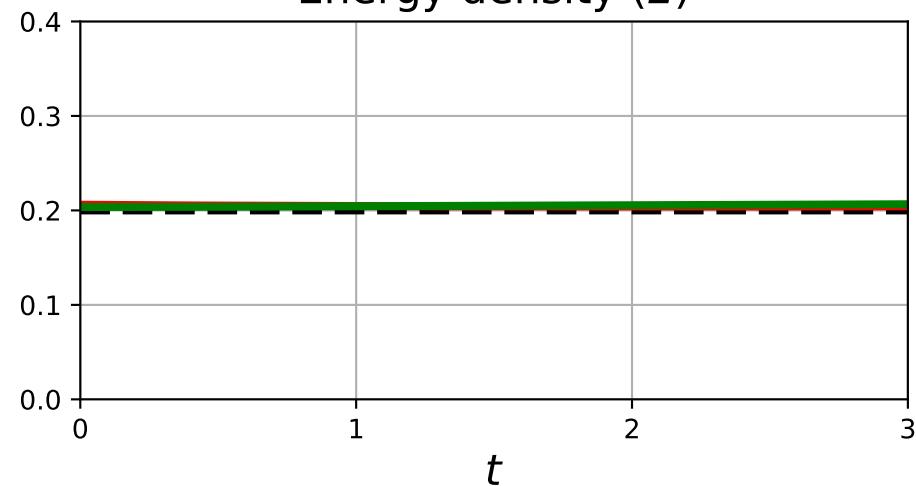
Bulk velocity ( $v_x$ )



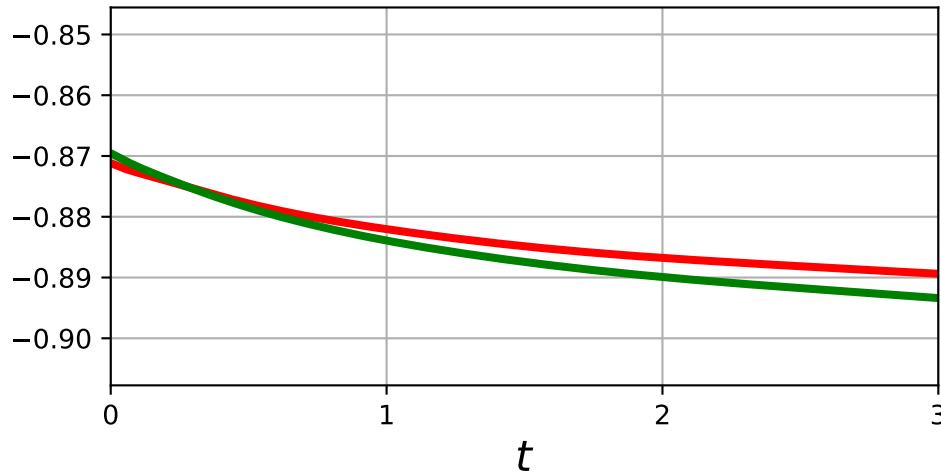
Bulk velocity ( $v_y$ )



Energy density ( $E$ )



Entropy density ( $H$ )



 opPINN PINN (ours)