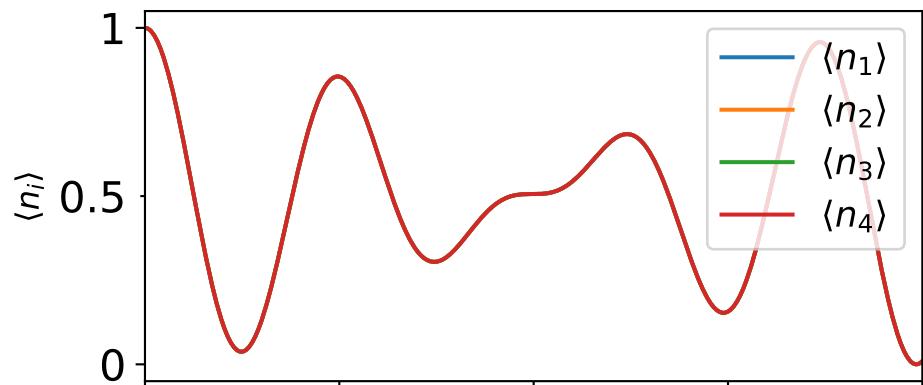


Initial state  $|1111\rangle$

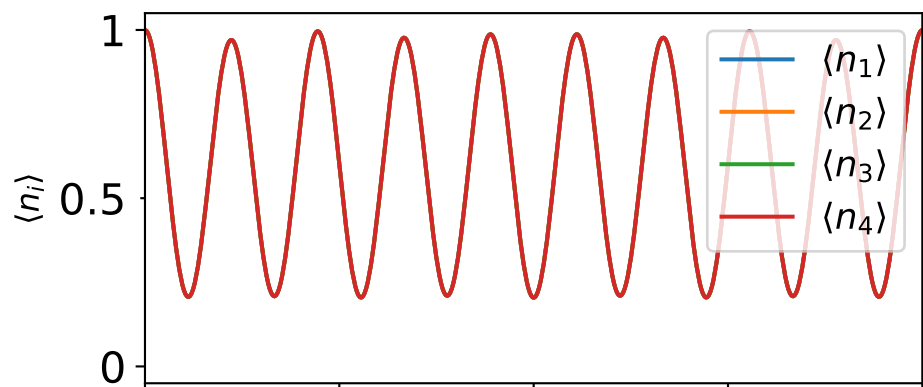
a)  $\varepsilon = 0, t = \Delta, t_c = 0.5, \varphi = 0$



b)  $\varepsilon = 0, t = \Delta, t_c = 0.5, \varphi = \pi$



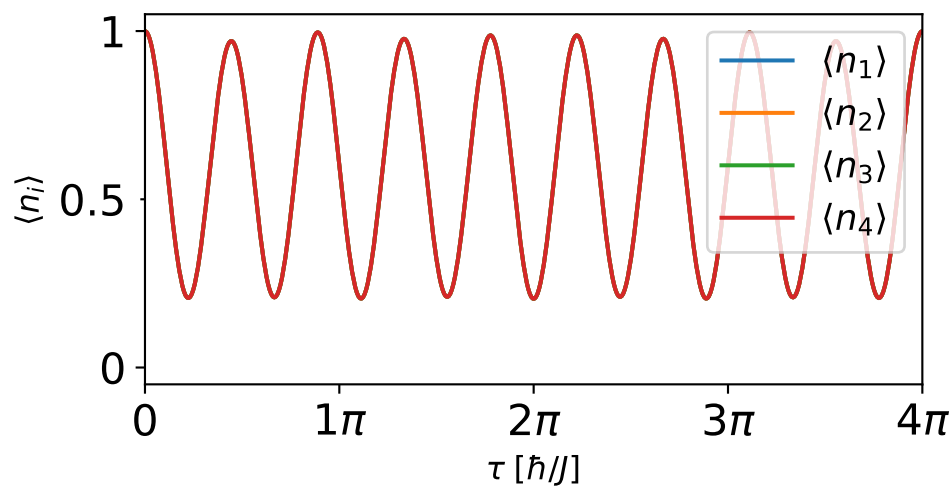
c)  $\varepsilon = 1, t = 1, \Delta = 2, t_c = 0.5, \varphi = 0$



d)  $\varepsilon = 1, t = 1, \Delta = 2, t_c = 0.5, \varphi = \pi$



e)  $\varepsilon = 1, t = 1, \Delta = -1, t_c = 0.5, \varphi = 0$



f)  $\varepsilon = 1, t = 1, \Delta = -1, t_c = 0.5, \varphi = \pi$

