1D Fast oscillations (Numerical)

$C(t) = \bar{C} + A\sin\left(\frac{2\pi t}{T}\right)$

$$T \gg \tau_{linear} \sim \bar{C}^{-1}$$

where we do not expect different dynamics if $A > \bar{C}$ or $A < \bar{C}$.

Kink dynamics

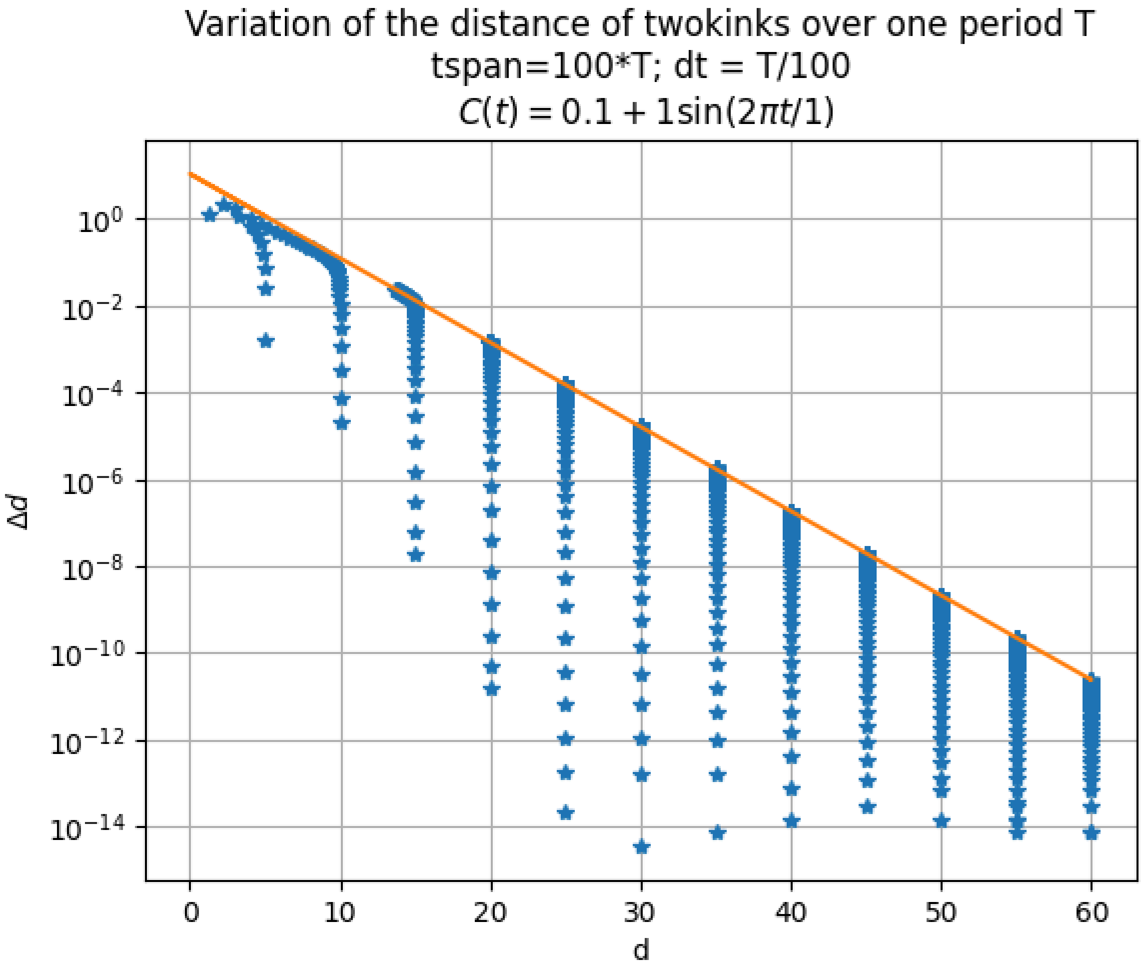
$$\dot{d}(t) \simeq -24\sqrt{2}\bar{C}^{\frac{1}{2}} e^{-2^{\frac{1}{2}}\bar{C}^{\frac{1}{2}}d}$$

Notice: It is the same formula in 1D Constant (Numerical) but now $C \to \bar{C}$.
The variation of the distance over a period (assuming the distant to be constant inside the integrand)

$$\Delta d(d) = \int_0^T (\partial_t d)dt = -24\sqrt{2}\int_0^T e^{d\sqrt{2}\bar{C}^{1/2}}\bar{C}^{1/2}dt$$

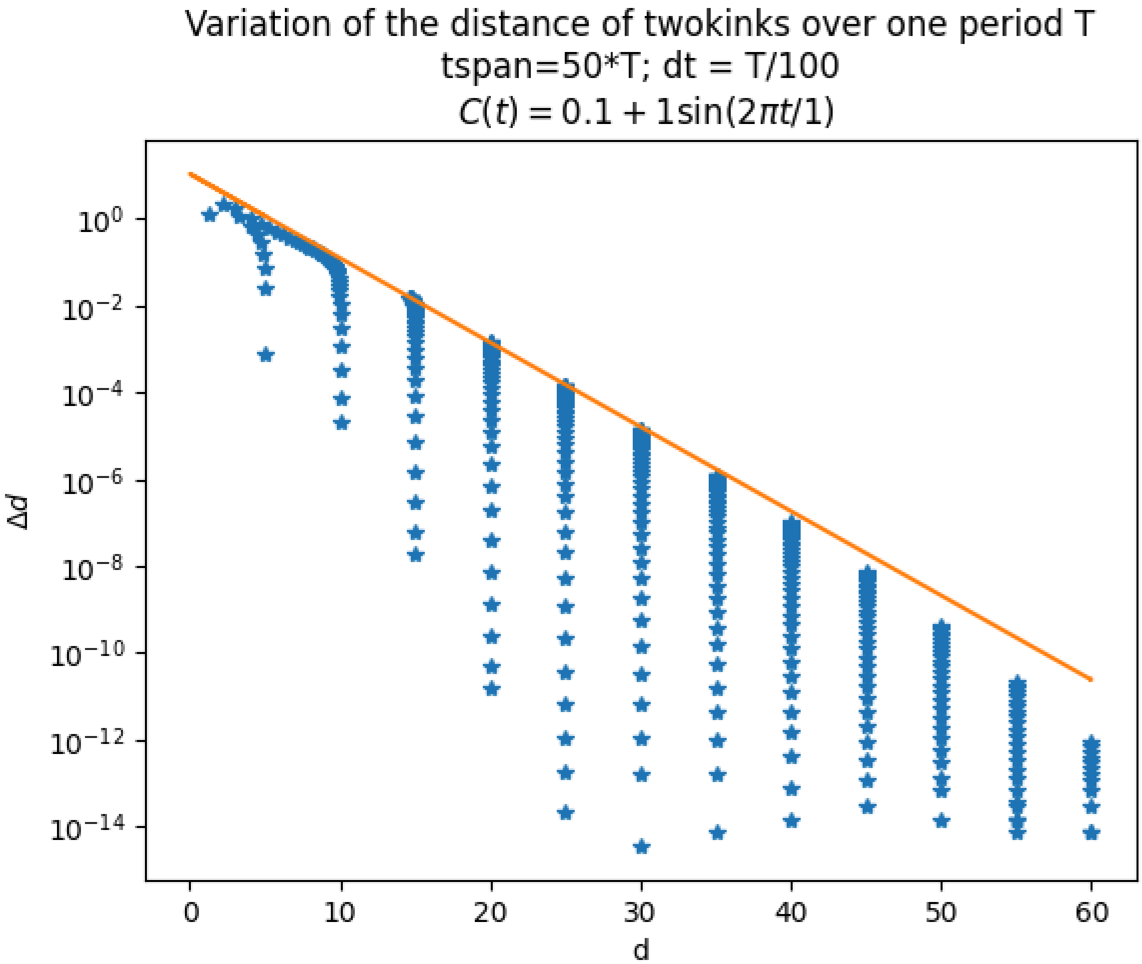
Simulation

In all the following simulations, we adopted $T = 10\bar{C}^{-1}$, such that $T \gg C^{-1}$.
The orange line is the formula above, while the blue points are experimental values. Those values are obtained running a simulation of 100T "seconds" for many different values of the initial distance. Δd is calculated for each period, for each simulation.

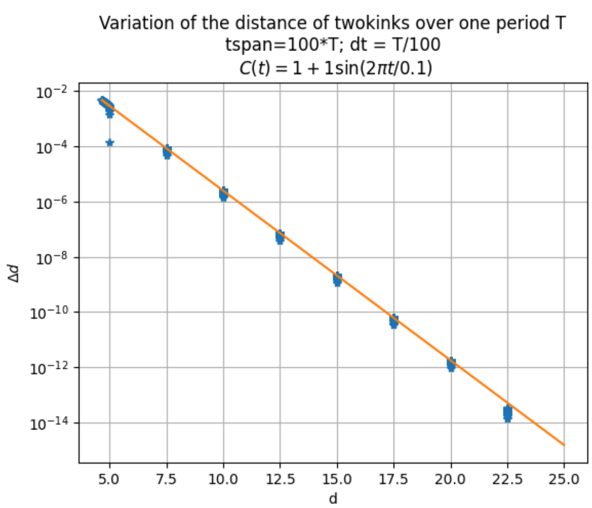


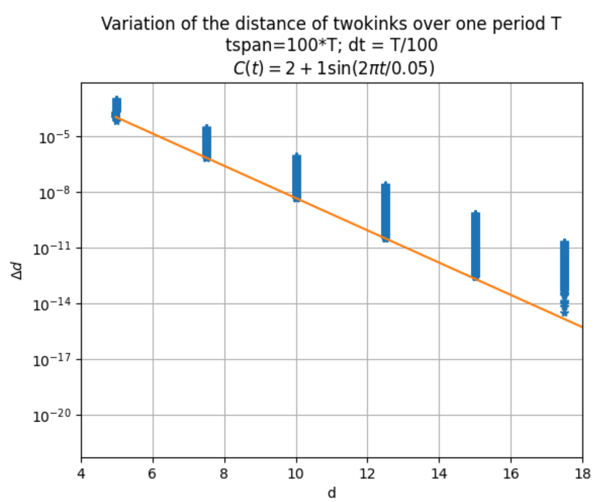
Notice: The way the blue dots "reach" the model tells something: We need to wait some periods before the simulation matches the model. Probably this is related to the **initial state preparation**. Here we show the same plot above, but each simulation lasts 50T instead of

100T.



Other simulations





Linear dynamics

$$\ell = \frac{2\pi}{< q^2 >^{1/2}} \sim t^{1/2}$$

$$\tau_{linear} \sim \bar{C}^{-1}$$