

# Report for oscillating

Simulated with: /home/mparcerisa/Desktop/code/TFG/BEC-Simulations/lib/managers/crankNicolson/dimensionless.p

## Simulation constants:

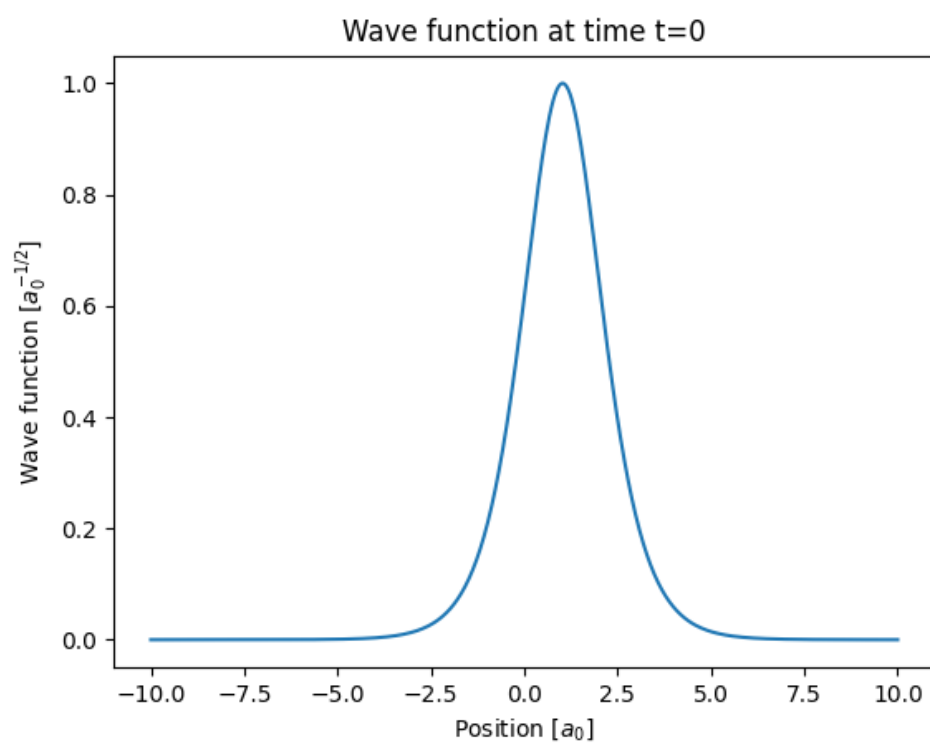
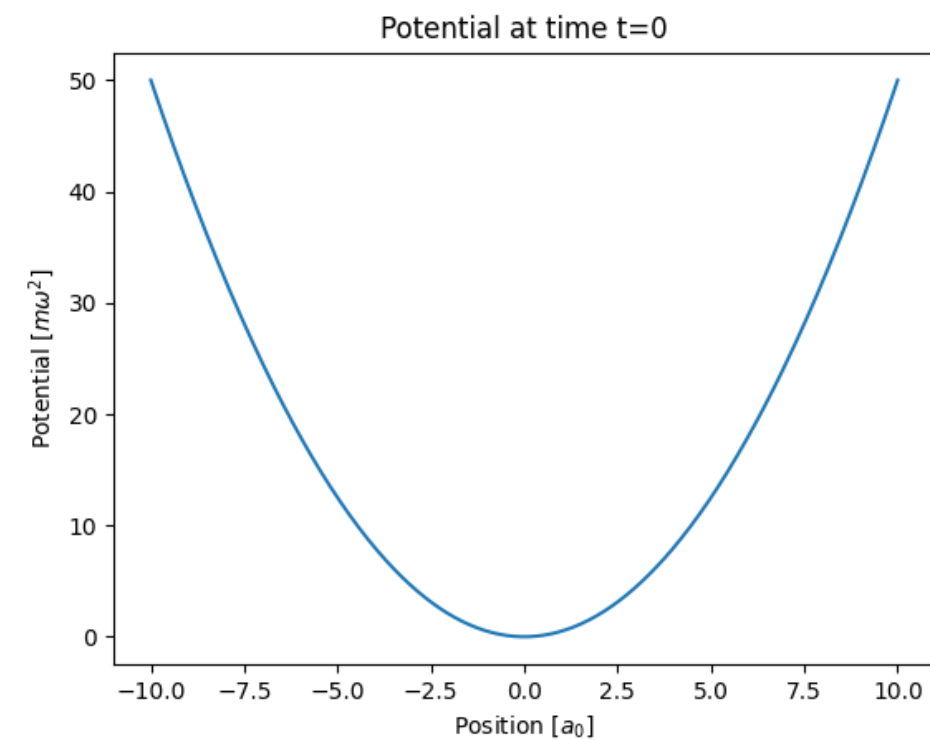
N: 1400	U0: -0.500	a0: 1.000
baseDensity: 1	dt: 0.005	dx: 0.050
hbar: 1.000	healingLength: 1.000	mass: 1.000
oscillationPeriod: 6.283	plotFPS: 1000.000	plotPause: 0.001
plotStep: 10	plotYMax: 2	plotYMin: -2
potentialW: 1.000	psi0: 1.000	r: 2.000
tCount: 1000	tMax: 5	tMin: 0
velocity: 0.000	x0: 1.000	xCount: 400
xMax: 10	xMin: -10	

## Wave function:

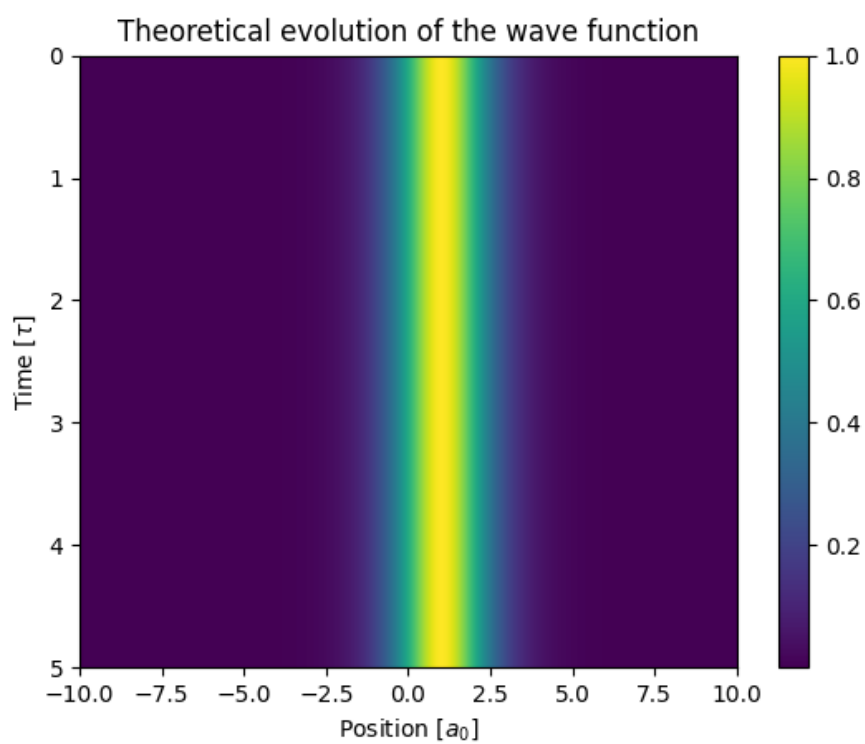
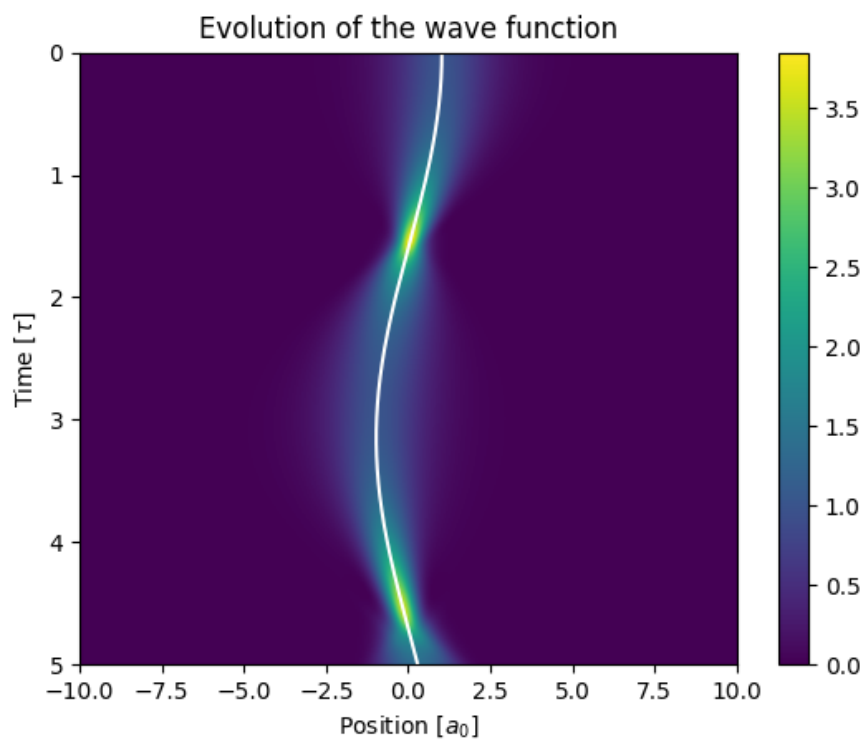
```
def waveFunction(x, t, constants):    """Displaced the soliton 0.01 a0 to the
right."""    psi0 = constants["psi0"]    xi = constants["healingLength"]
x0 = constants["x0"]    return psi0 / jnp.cosh((x - x0) / jnp.sqrt(2) / xi)
```

## Potential function:

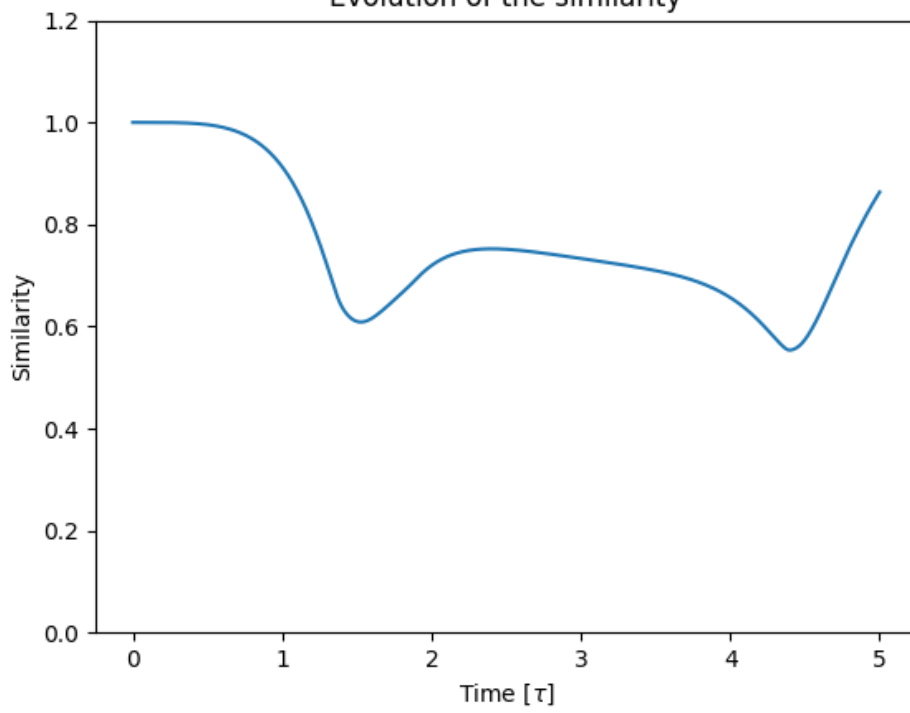
```
def V(x, t, constants):    return 1 / 2 * x**2
```



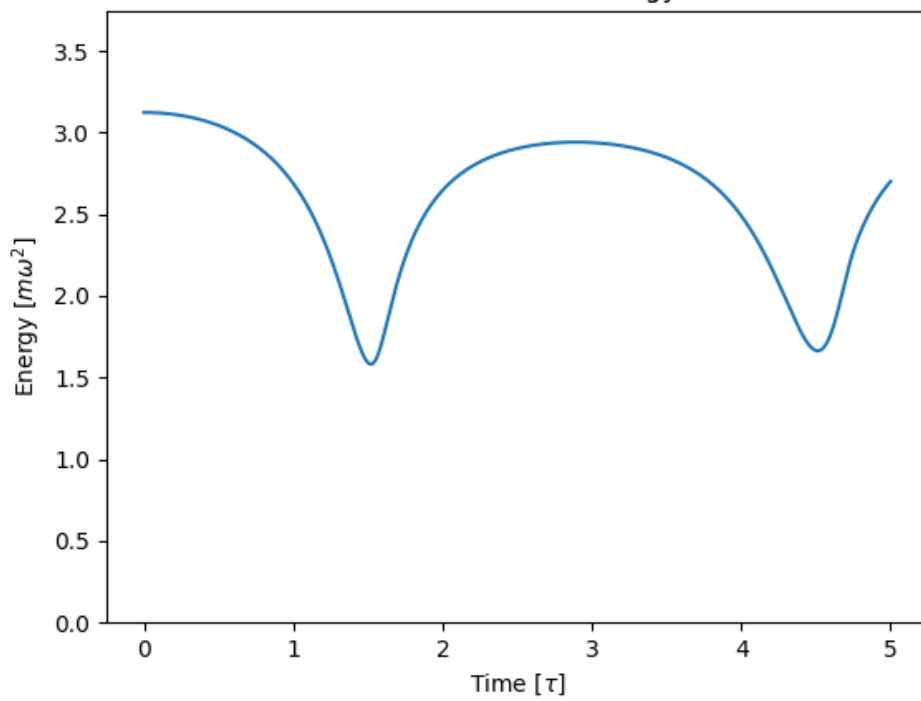
Results



Evolution of the similarity



Evolution of the energy



Evolution of the norm

