

# Report for falling

Simulated with: lib.managers.crankNicolson.dimensionless

## Simulation constants:

baseDensity: 1	chemicalPotential: 1	dt: 0.005
dx: 0.200	g: -1	hbar: 1
healingLength: 0.707	mass: 1	plotFPS: 1000.000
plotPause: 0.001	plotStep: 10	plotYMax: 2
plotYMin: -2	r: 0.125	tCount: 1000
tMax: 5	tMin: 0	velocity: 0
x0: 0	xCount: 100	xMax: 10
xMin: -10		

## Wave function:

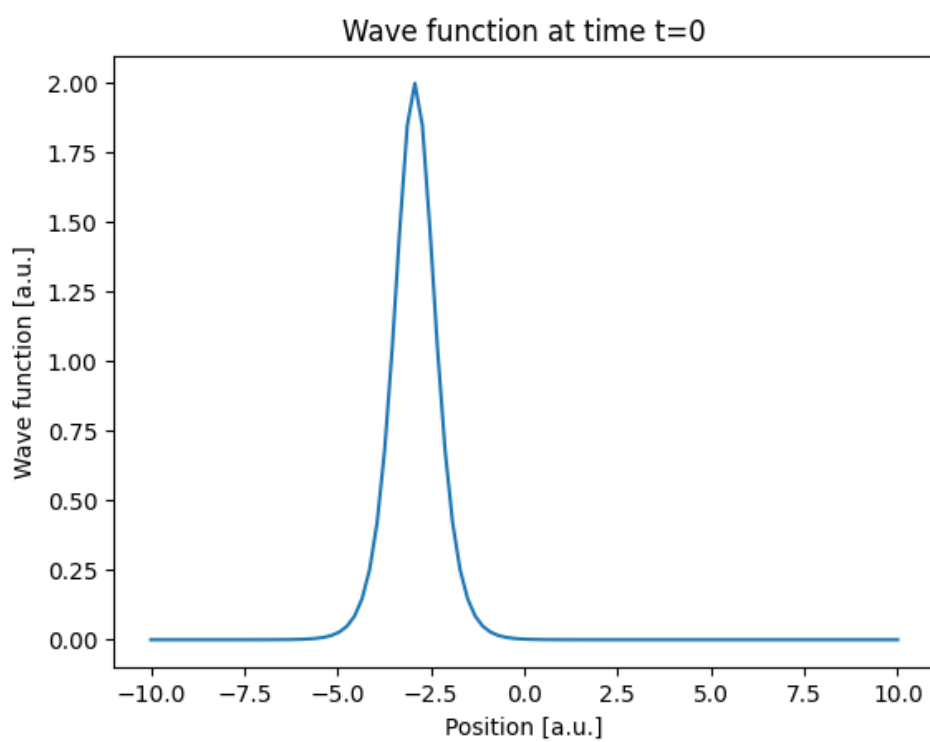
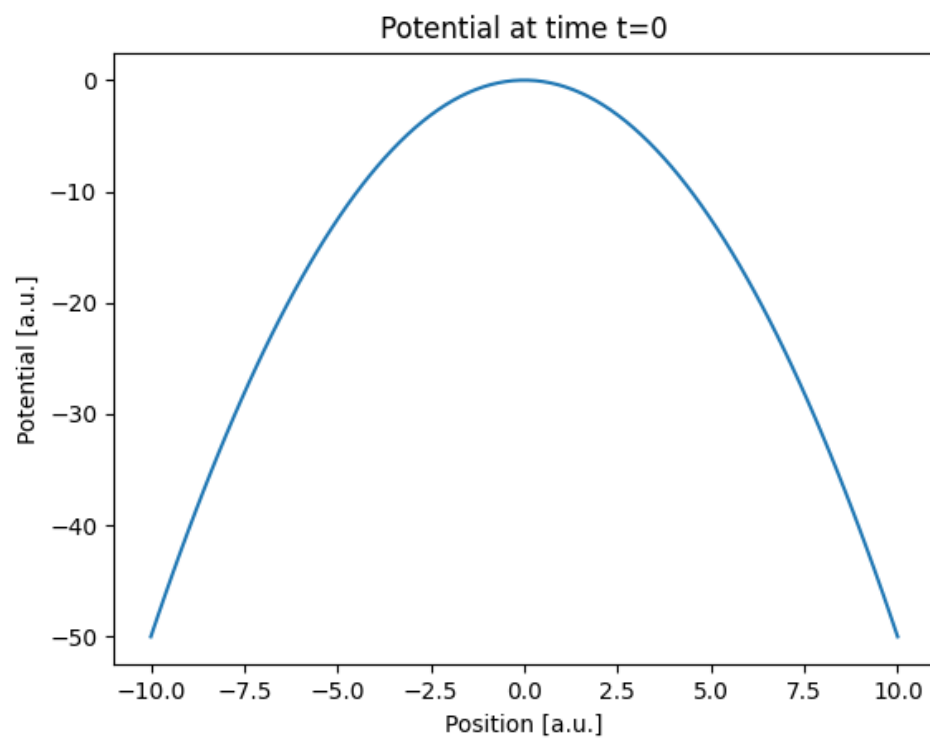
```
def waveFunction(x, t, constants):    eta = 1 / constants["healingLength"]

kappal = 0    omegal = (kappal**2 + eta**2) / 2    v1 = kappal    x1 = -3

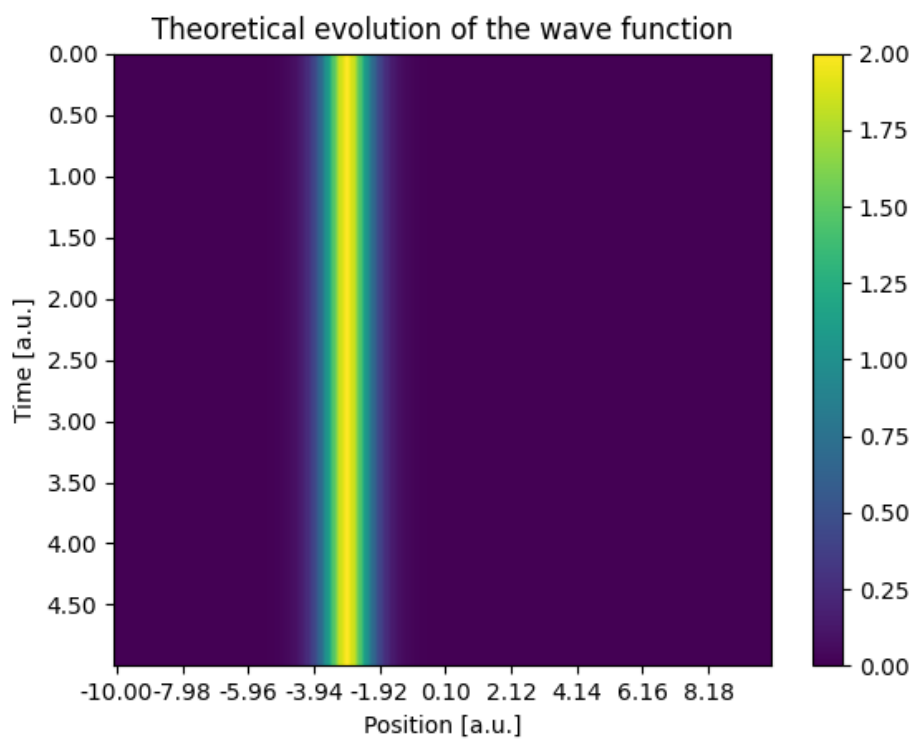
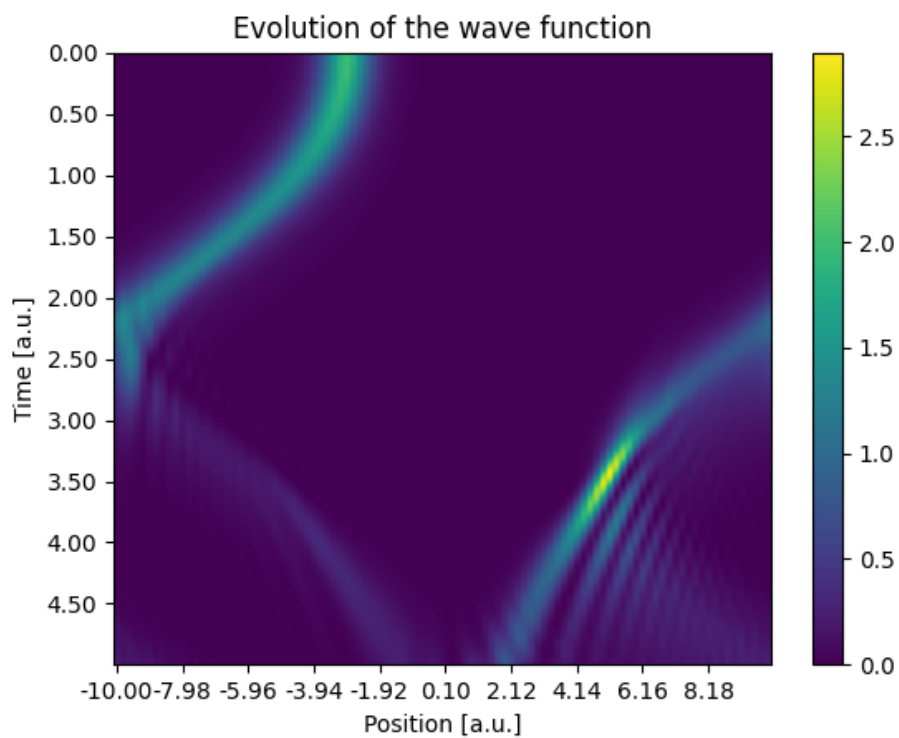
wfl = eta * jnp.exp(1j * kappal * (x - x1) - 1j * omegal * t) / jnp.cosh(eta *
((x - x1) - v1 * t))    return wfl
```

## Potential function:

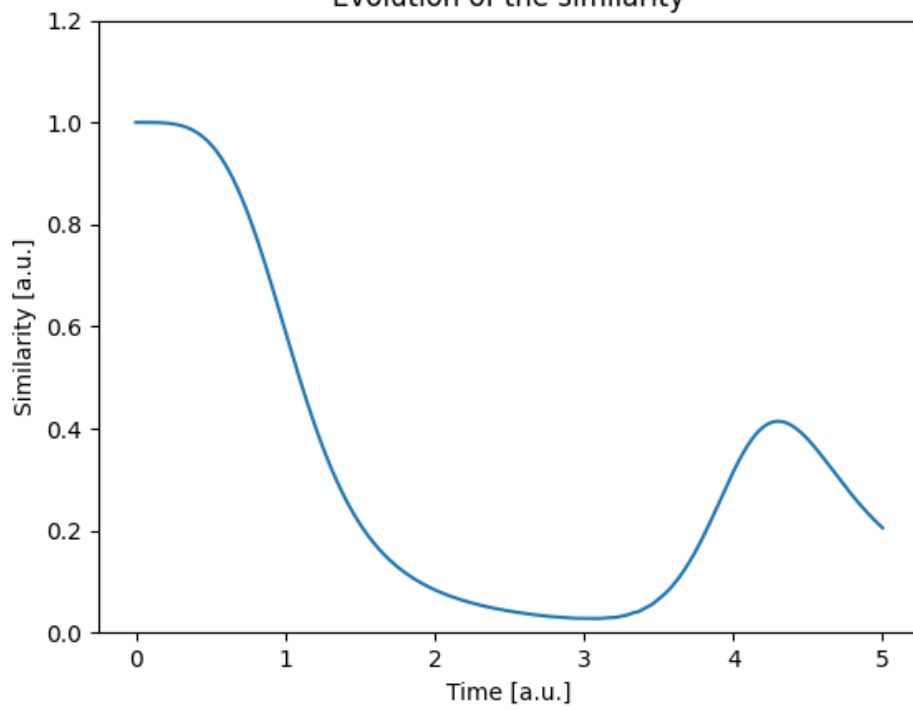
```
def V(x, t, constants):    return -1 / 2 * x**2
```



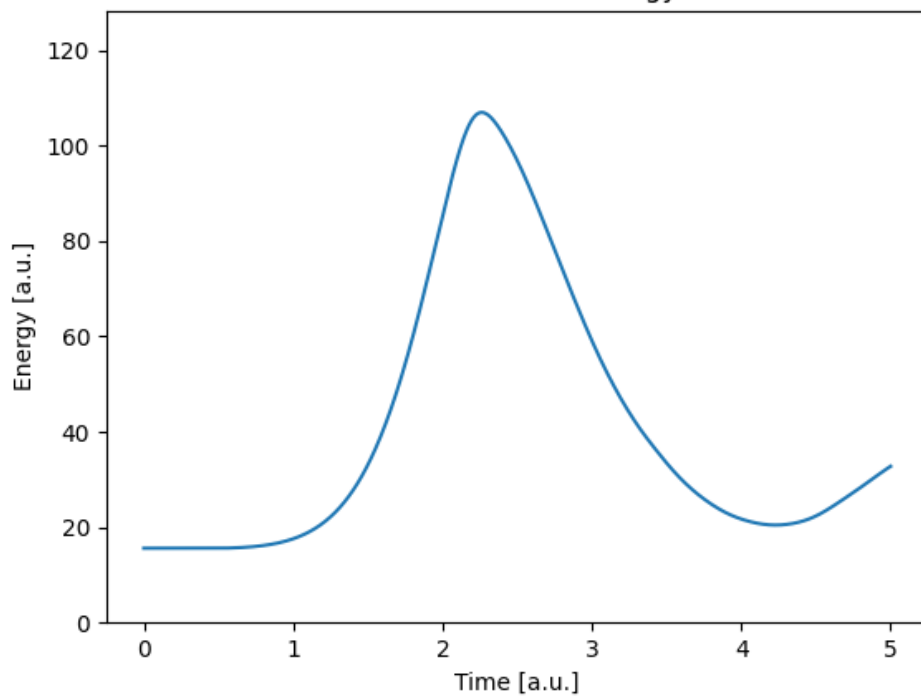
Results



Evolution of the similarity



Evolution of the energy



Evolution of the norm

