

# Report for fixedOnTop

Simulated with: lib.managers.crankNicolson.dimensionless

## Simulation constants:

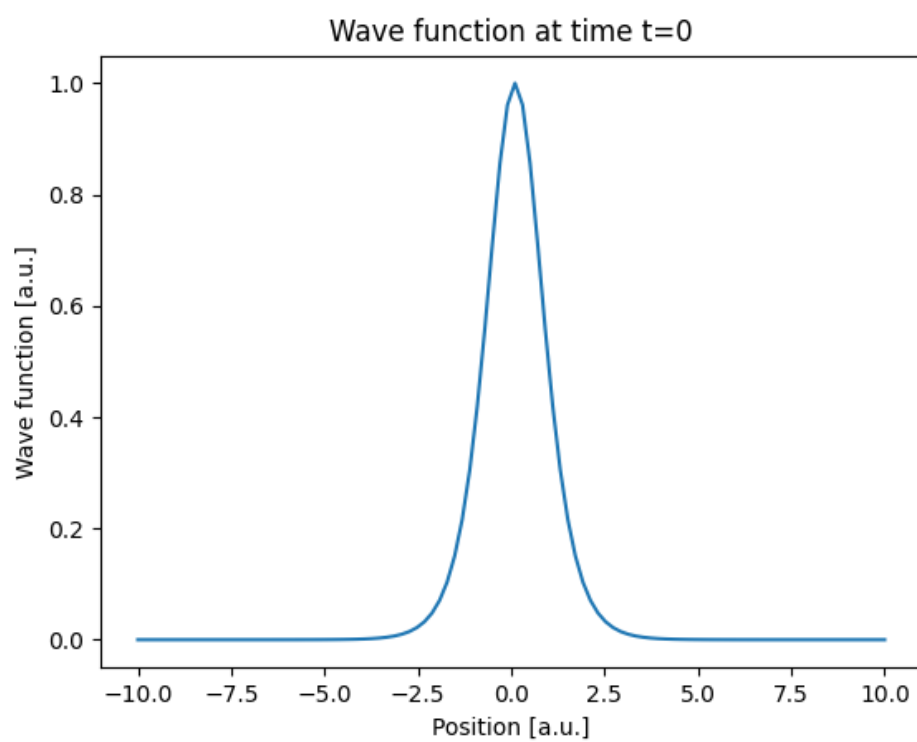
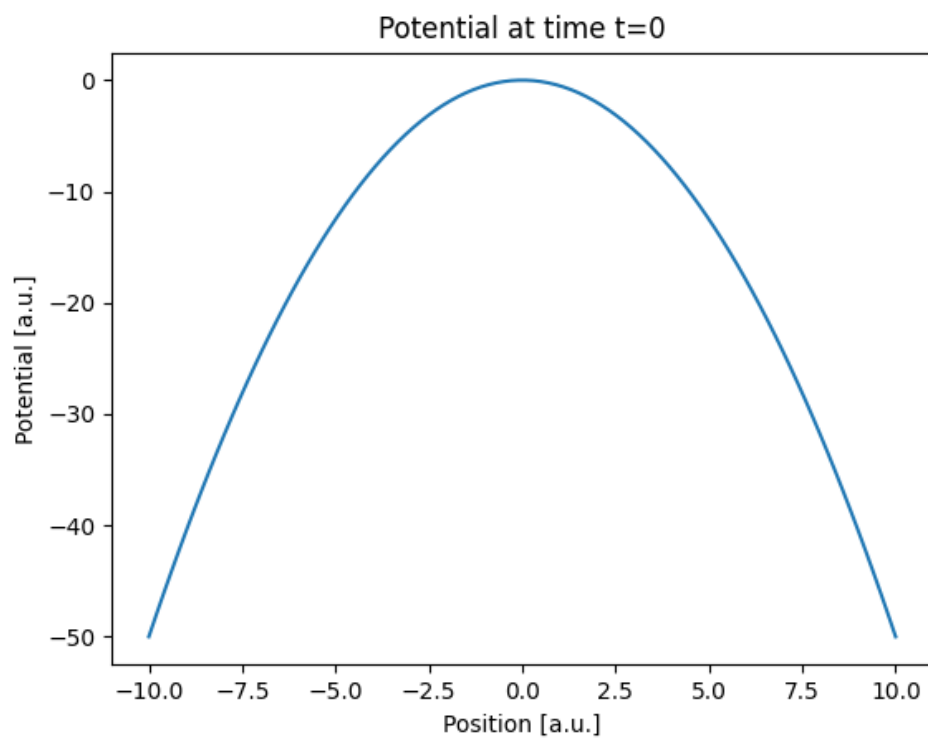
```
baseDensity: 1.000      chemicalPotential: 1.000      dt: 0.005
dx: 0.200               g: -1.000                hbar: 1.000
healingLength: 0.707    mass: 1.000              plotFPS: 1000.000
plotPause: 0.001        plotStep: 10             plotYMax: 2
plotYMin: -2            r: 0.125              tCount: 1000
tMax: 5                 tMin: 0                velocity: 0.000
x0: 0.000               xCount: 100             xMax: 10
xMin: -10
```

## Wave function:

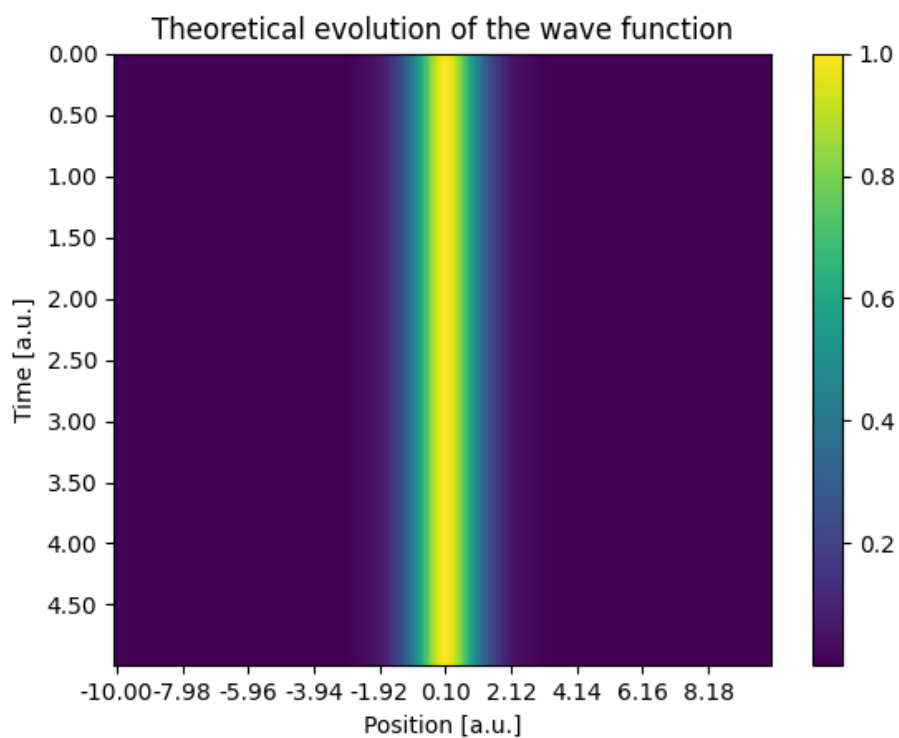
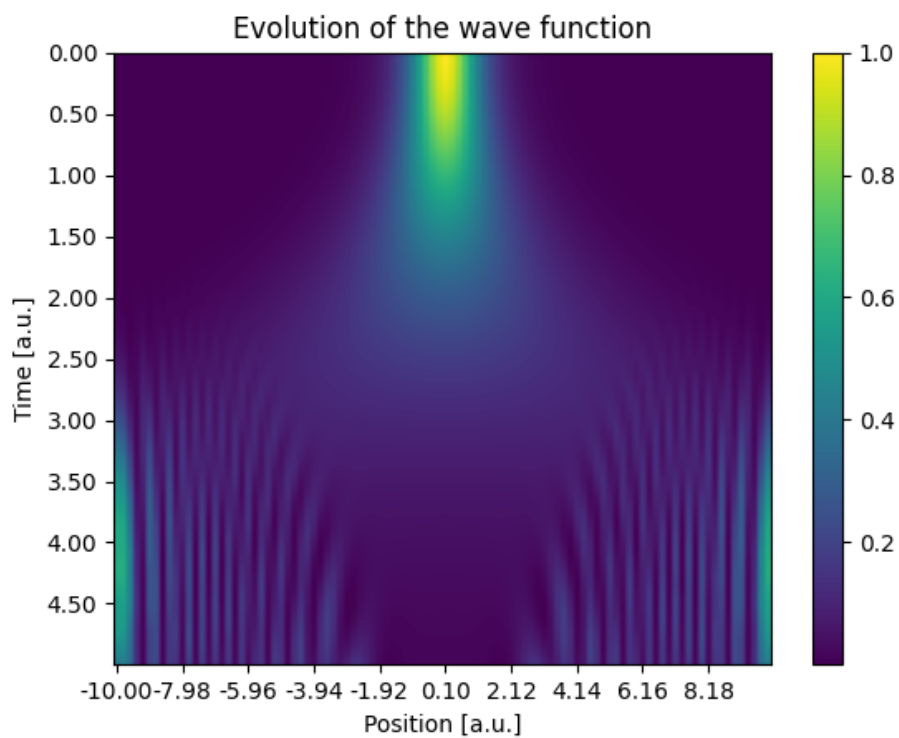
```
def brightSoliton(x, t, constants):    v = constants["velocity"]    g =
constants["g"]    x0 = constants["x0"]    eta = jnp.sqrt((v**2 + 2) / (-2 *
g))    kappa = jnp.sqrt(2 / (v**2 + 2))    spacePart = eta / jnp.cosh(((x -
x0) - v * t) / kappa) * jnp.exp(1j * (x - x0) * v)    timePart = jnp.exp(1j *
(1 / 2 - v**2 / 4) * t)    return spacePart * timePart
```

## Potential function:

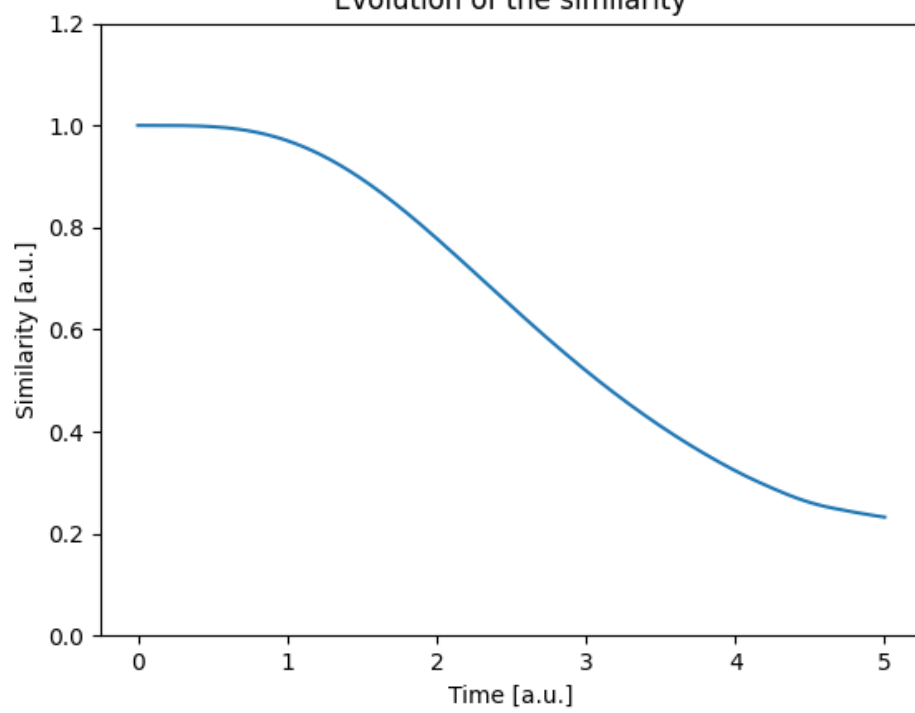
```
def V(x, t, constants):    return -1 / 2 * x**2
```



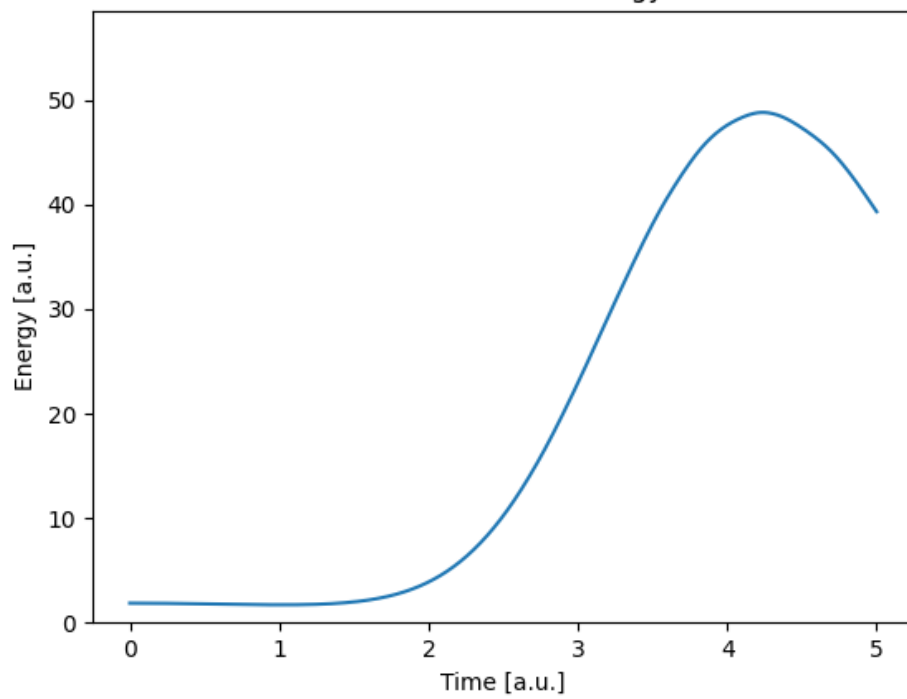
## Results



Evolution of the similarity



Evolution of the energy



Evolution of the norm

