Report for stillBrightSoliton

Simulated with: lib.managers.crankNicolson.default

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
```

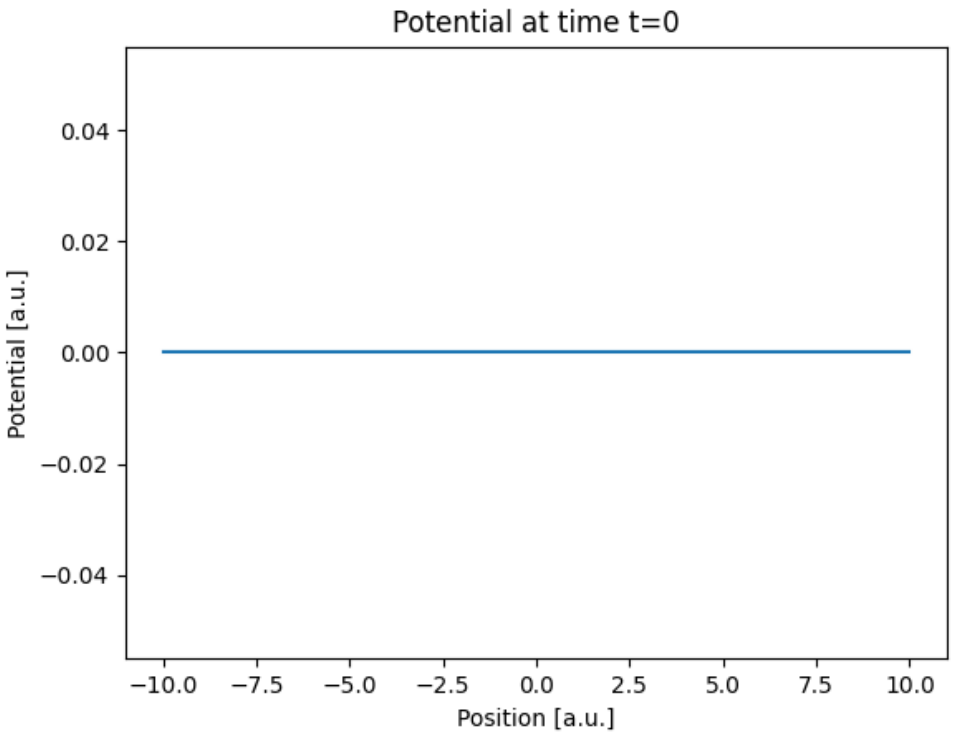
Wave function:

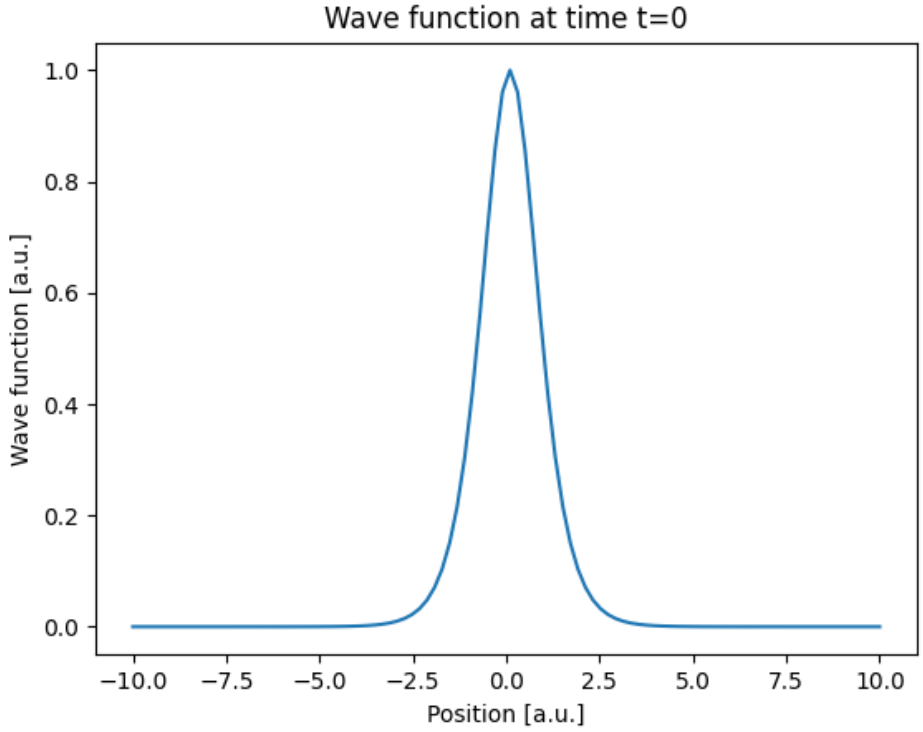
```
def waveFunction(x, t):     return eta * jnp.exp(1j * kappa * x - 1j * omega *

t) / jnp.cosh(eta * (x - v * t))
```

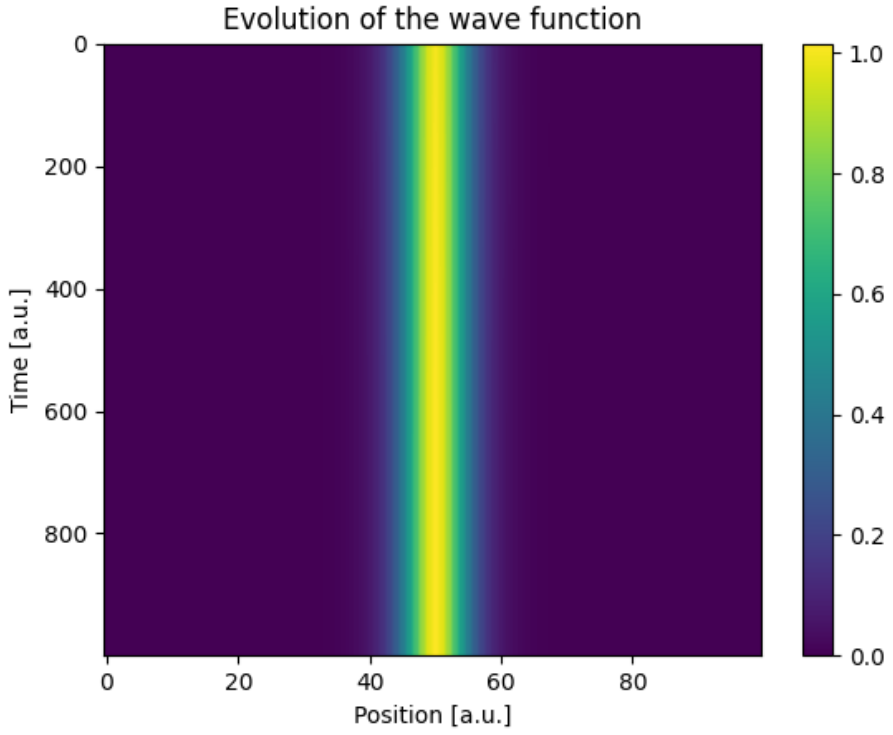
Potential function:

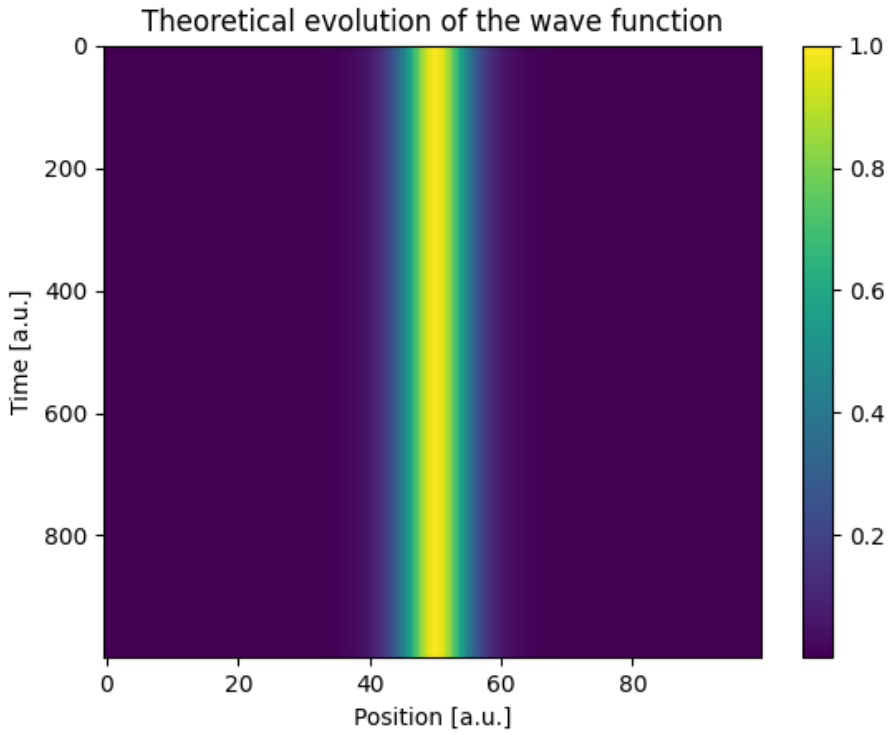
```
def V(x, t):     return jnp.zeros_like(x)
```

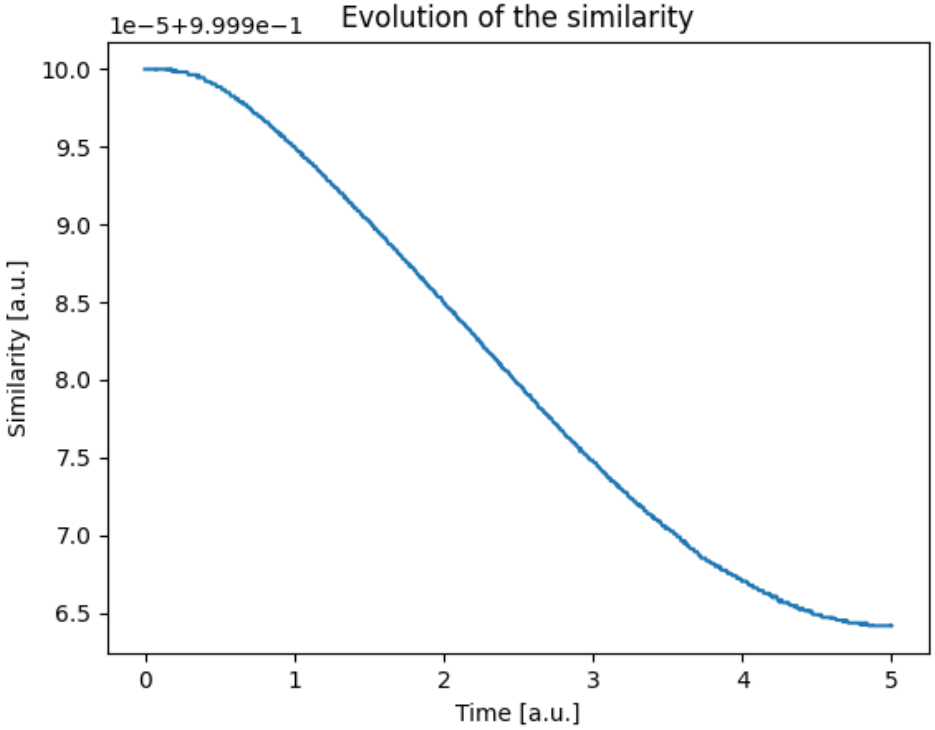


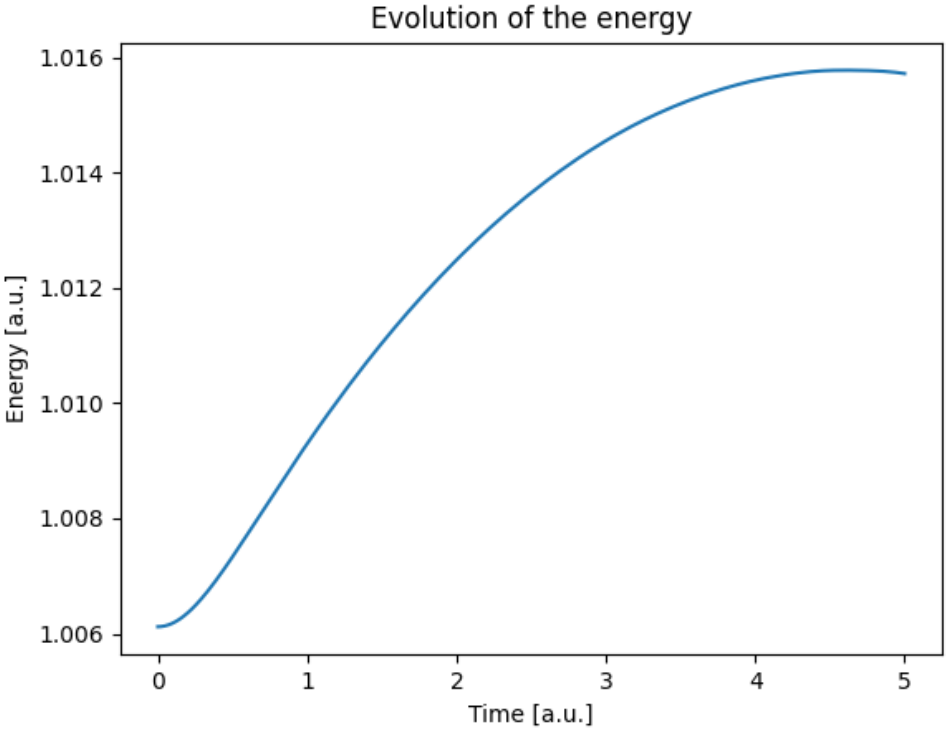

Wave function at time t=0
Wave function [a.u.]
1.0
0.8
0.6
0.4
0.2
0.0
−10.0
−7.5
−5.0
−2.5
0.0
2.5
5.0
7.5
10.0
Position [a.u.]

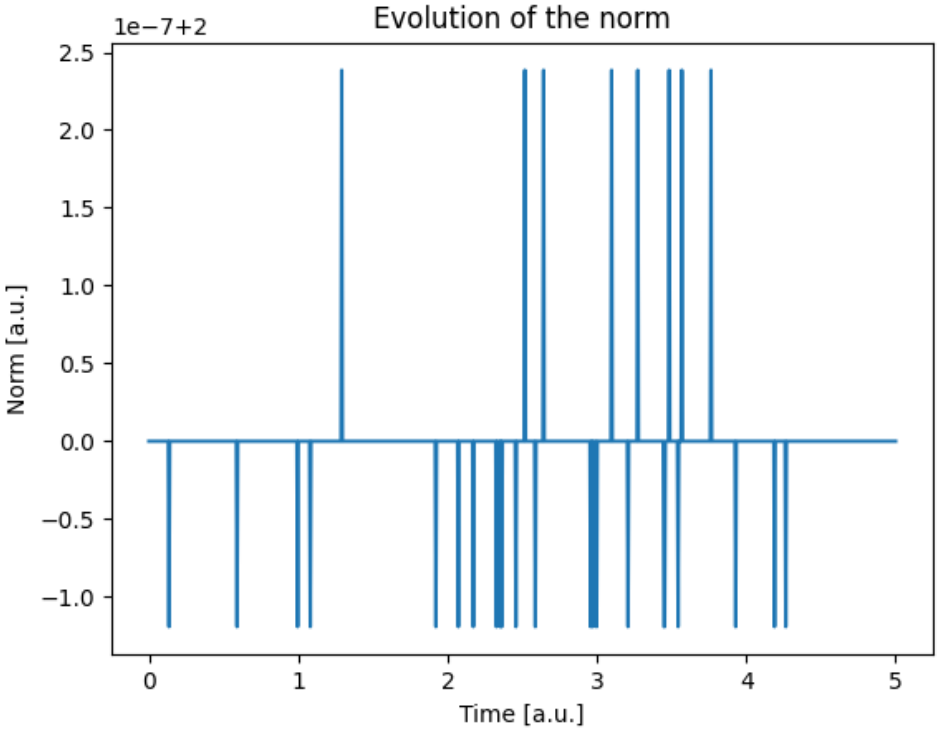
Results


Evolution of the wave function
Time [a.u.]
0
200
400
600
800
0
20
40
60
80
Position [a.u.]
1.0
0.8
0.6
0.4
0.2
0.0


Theoretical evolution of the wave function
Time [a.u.]
Position [a.u.]
0
200
400
600
800
0
20
40
60
80
1.0
0.8
0.6
0.4
0.2


Evolution of the similarity
1e−5+9.999e−1
Similarity [a.u.]
Time [a.u.]
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
0
1
2
3
4
5


Evolution of the energy
Energy [a.u.]
1.016
1.014
1.012
1.010
1.008
1.006
0
1
2
3
4
5
Time [a.u.]


Evolution of the norm
1e−7+2
Norm [a.u.]
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
0
1
2
3
4
5
Time [a.u.]