

Report for frontCollision

Simulated with: lib.managers.crankNicolson.dimensionless

Simulation constants:

```
baseDensity: 1          chemicalPotential: 10          dt: 0.005
dx: 0.050              g: -10                        hbar: 1
healingLength: 0.224    mass: 1                      plotFPS: 1000.000
plotPause: 0.001        plotStep: 10                  plotYMax: 2
plotYMin: -2            r: 2.000                      tCount: 1000
tMax: 5                 tMin: 0                       velocity: 0
x0: 0                   xCount: 400                   xMax: 10
xMin: -10
```

Wave function:

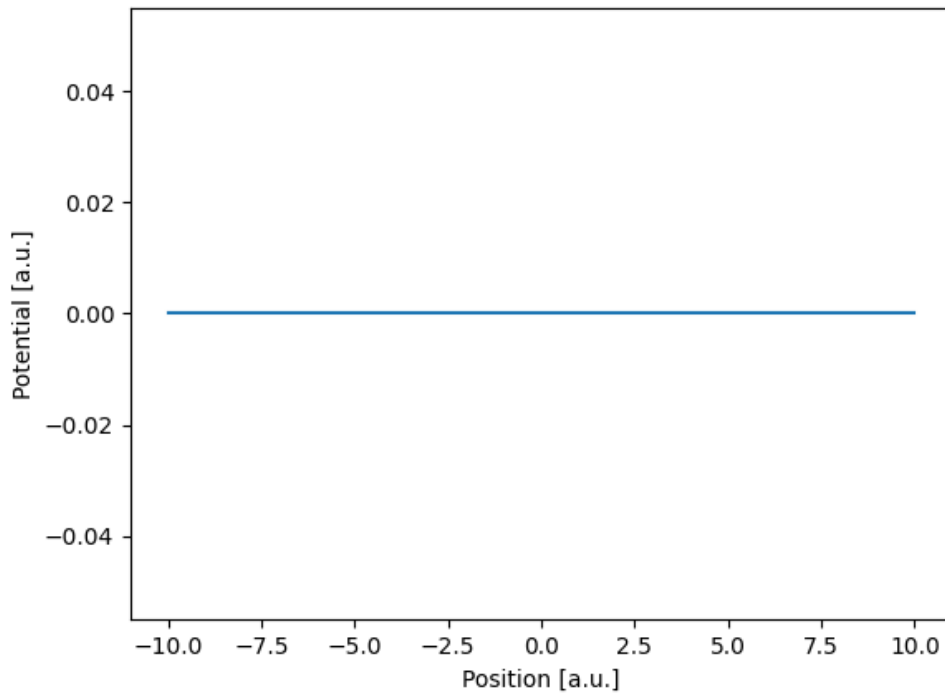
```
def waveFunction(x, t, constants):    eta = 1 / constants["healingLength"]

kappa1 = 1      omega1 = (kappa1**2 + eta**2) / 2      v1 = kappa1      kappa2 =
-1      omega2 = (kappa2**2 + eta**2) / 2      v2 = kappa2      x1 = -3      x2 = 3
wf1 = eta * jnp.exp(1j * kappa1 * (x - x1) - 1j * omega1 * t) / jnp.cosh(eta *
((x - x1) - v1 * t))      wf2 = eta * jnp.exp(1j * kappa2 * (x - x2) - 1j *
omega2 * t) / jnp.cosh(eta * ((x - x2) - v2 * t))      return wf1 + wf2
```

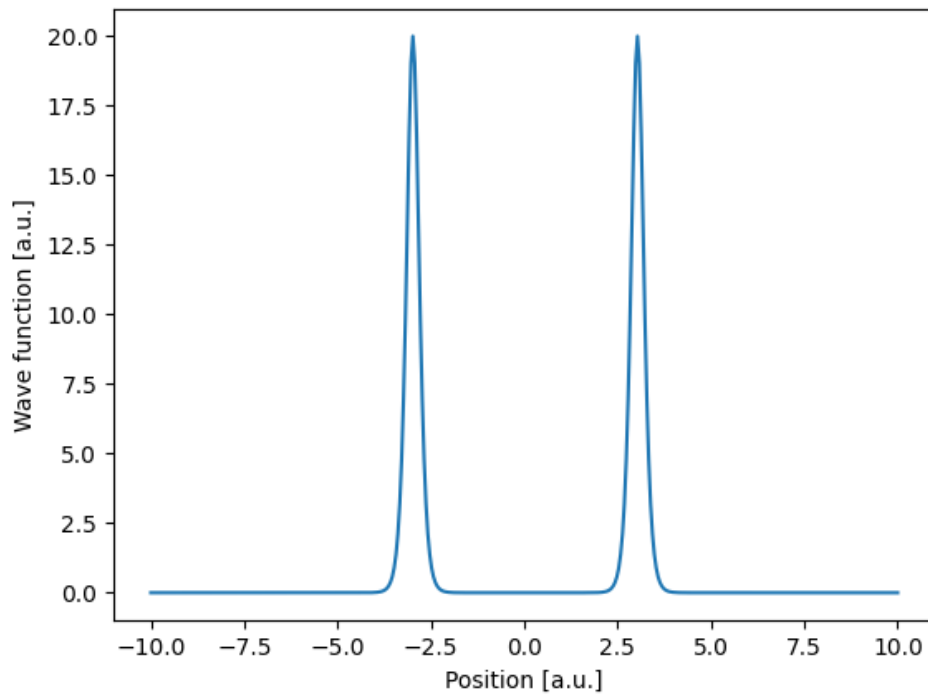
Potential function:

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

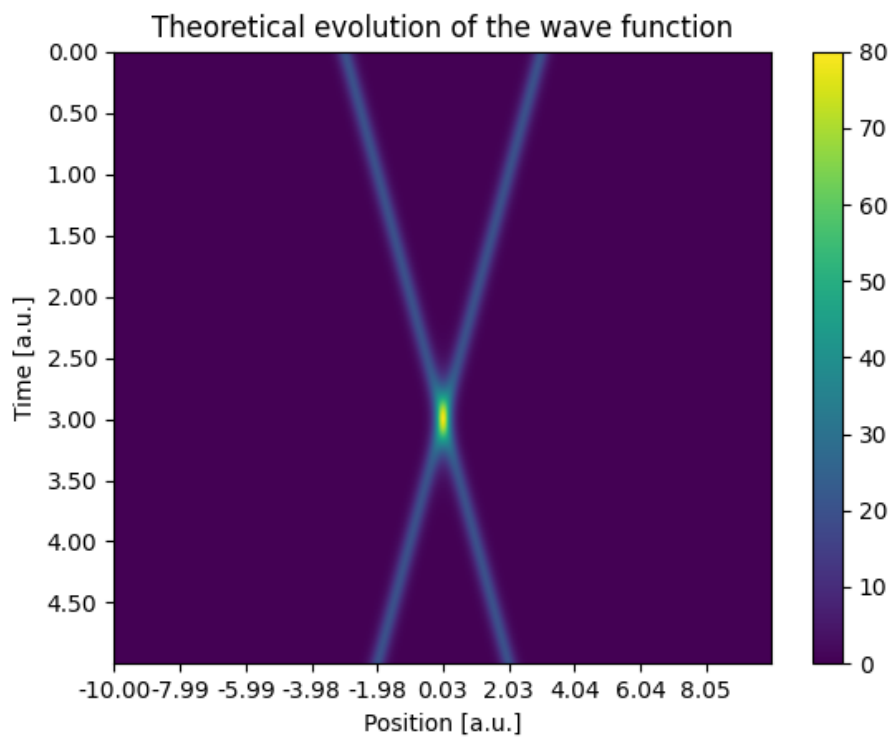
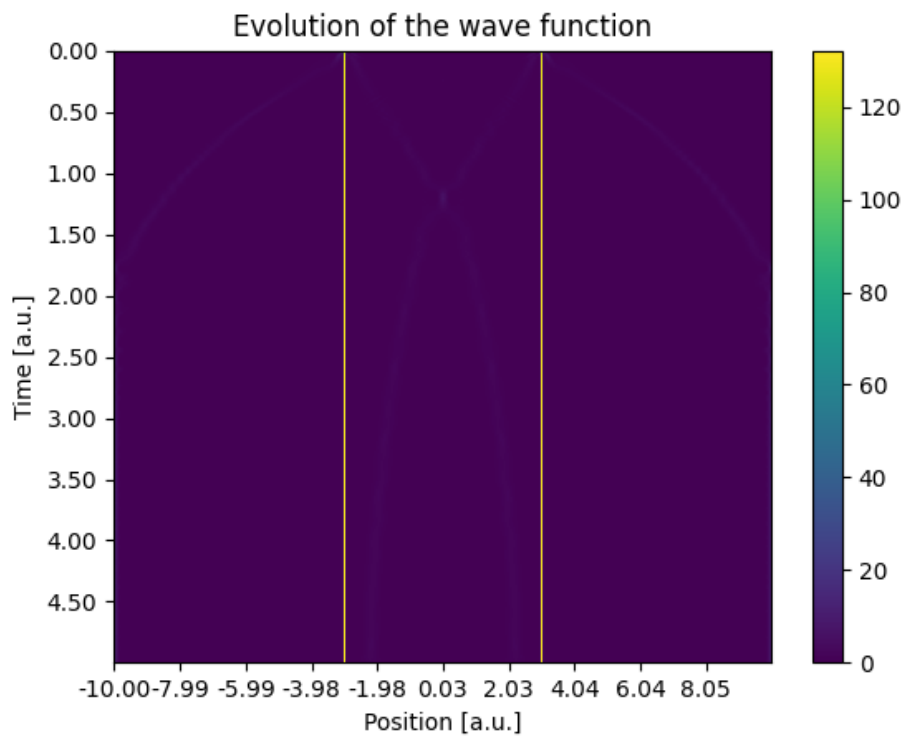
Potential at time $t=0$



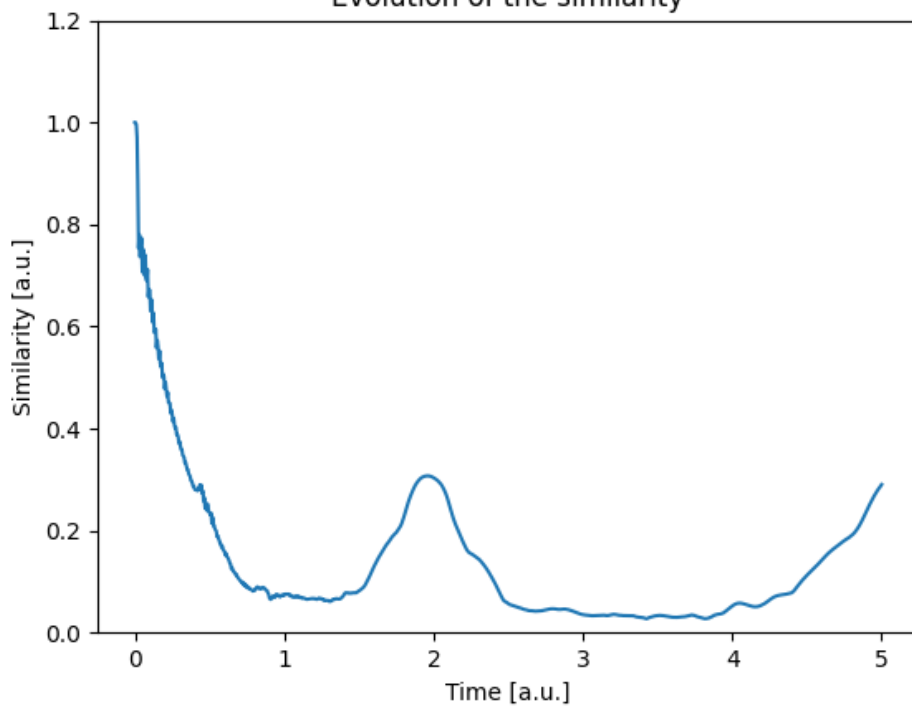
Wave function at time $t=0$



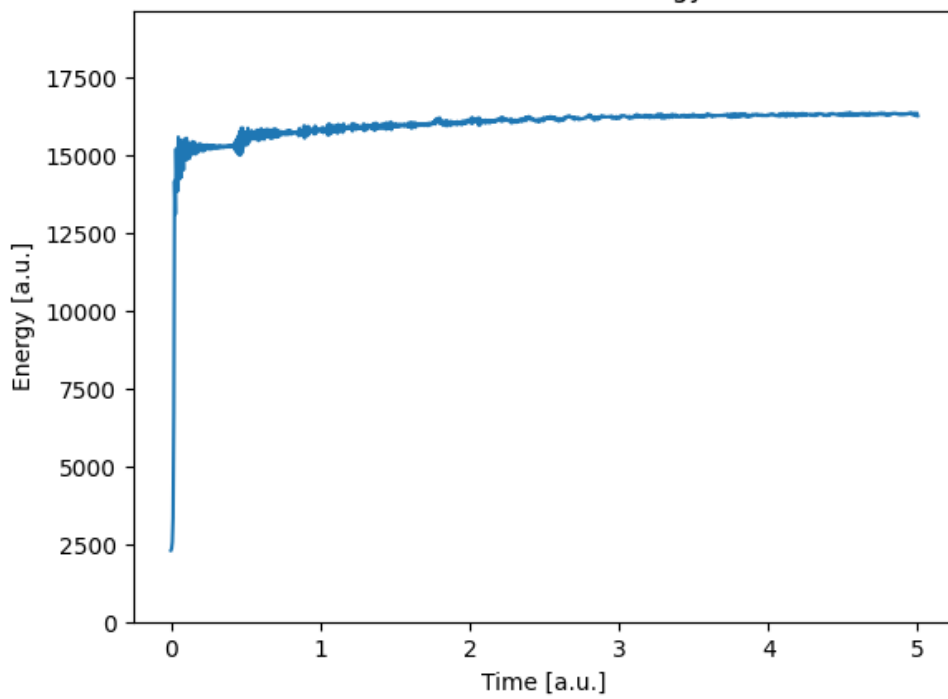
Results



Evolution of the similarity



Evolution of the energy



Evolution of the norm

