

# LC Soliton Simulator — Usage Guide

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## Quickstart

Install the environment and run examples.

### GPU:

```
conda env create -f environment.yml
conda activate lc_soliton
make install
```

### CPU:

```
conda env create -f environment-cpu.yml
conda activate lc_soliton_cpu
make install
```

### Example run:

```
python examples/run_theta2d.py --Nx 128 --Ny 128 --xaper 10.0 \
  --steps 500 --dt 1e-3 --b 1.0 --bi 0.3 --intensity 1.0 \
  --mobility 4.0 --save theta_out.npz
```

## Physical Time & Mobility

mobility  $\equiv (K/\gamma_1) \cdot (4/d^2)$  [ $s^{-1}$ ]. Set dt in seconds.

Example:  $K = 10$  pN,  $\gamma_1 = 0.1$  Pa·s,  $d = 10$   $\mu m \rightarrow$  mobility  $\approx 4.0$