

Demo MATLAB codes for finding transition paths and transition states

Codes for finding saddles

`dimer_demo.m` and `dimer_demo1.m` implement the shrinking dimer method [ZD] for finding Morse index one saddles in a 2D three-well potential.

`dimer_demo.c` starts with finding MEPs (minimum energy paths) using the string method and then nails down saddles using the shrinking dimer method.

`dimer_demo1.m` runs the shrinking dimer method starting from a set of uniformly distributed locations in the computational domain.

Codes for finding MEPs (minimum energy paths)

`string_7well.m` implements the string method to find MEPs between all pairs of local minima in a 2D seven-well potential [ERV].

`NEB_demo_2well.m` implements the nudged elastic band method [JMJ] to find the MEP connecting the minima in a 2D double-well potential.

Codes for finding MEPs for SPDEs

`AllenCahnString.m` implements the string method to find a MEP in the 2D Allen-Cahn model [AC]

Codes for finding MAPs (minimum action paths)

`gmam.m` implements the geometric minimum action method [HV] for finding a MAP connecting the asymptotically stable equilibria in the bistable Maier-Stein system [MS]

References

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