

Chaos and Quantum Chaos
Summer term 2021

6. Exercise

(to be presented and discussed on Monday May 31)

6.1 Baker map

The L -baker map is defined in analogy to the 2-baker map (https://en.wikipedia.org/wiki/Baker's_map) but with L vertical stripes that are mapped to L horizontal stripes without folding.

a) Determine the Kolmogorov-Sinai entropy.

Hint: Determine the entropy for a reasonable (and convenient) partition. Find arguments why no other partition will give a larger entropy.

b) Determine the number of periodic orbits of length p using symbolic dynamics.

Hint: Ignore the problem of repetitions of shorter periodic orbits.

c) Give examples of homoclinic and heteroclinic orbits using symbolic dynamics.