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Complex Dynamics in Quantum Systems
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Tutorial on Quantum Chaos

nHS, Phil.weg 12, Wednesday 14:15 - 16:00 (SS 2012)

Problem Sheet 1 – Dynamical Maps

Problem 1

Prove the following theorem:

Let T be a continuous dynamical map with a fixed point x_0 and $|(Tx)'|_{x=x_0}| < 1$, then x_0 is attractive.

Problem 2

Find the fixed points of order 2 of the logistic map $Tx = ax(1 - x)$ ($x \in [0, 1]$), with a as a free parameter. Check also the stability of the found fixed points.

Problem 3

Find all 1st and 2nd order fixed points of the dyadic shift map (see lecture).