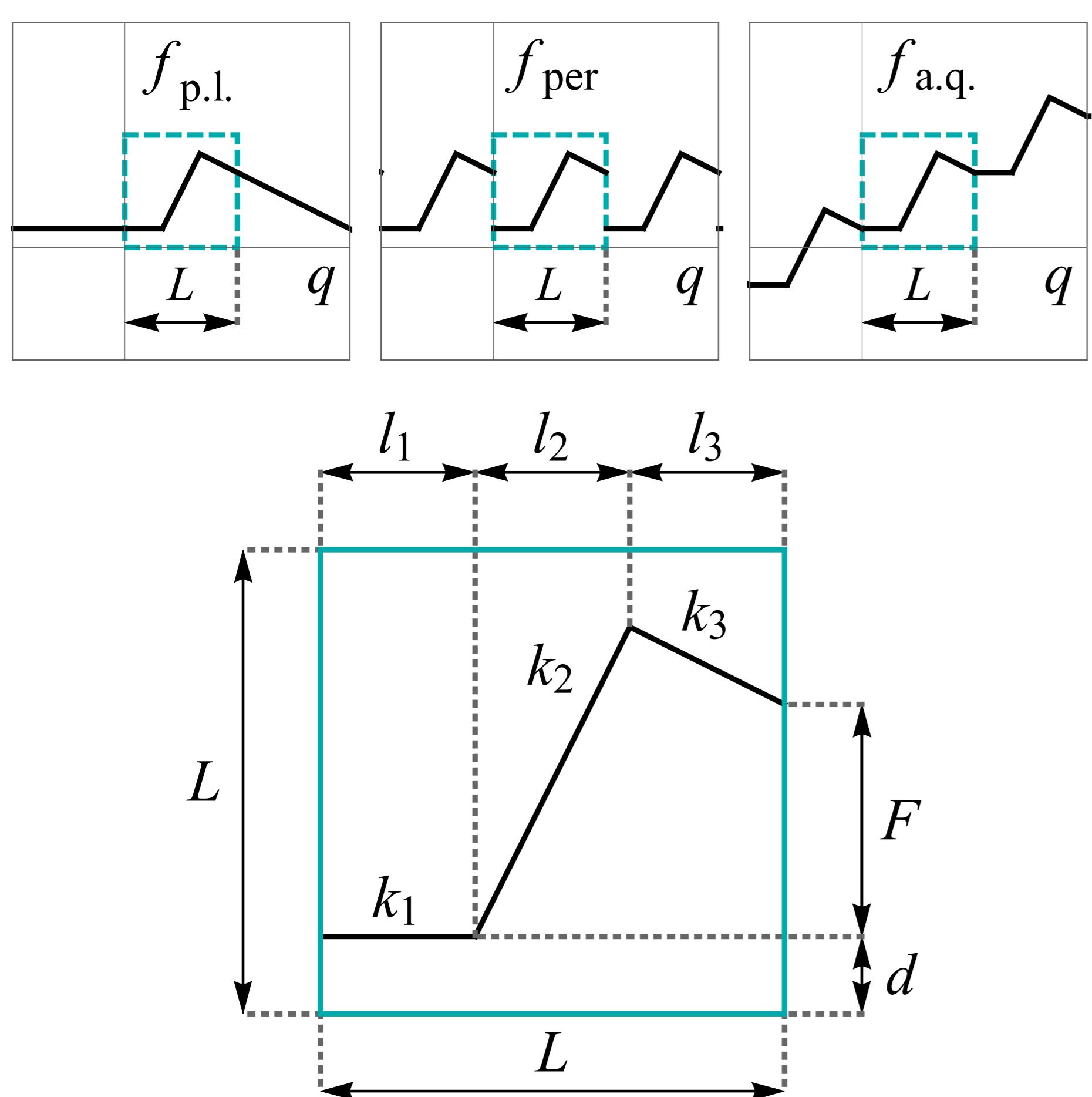


McMillan-Hénon form of the map & Force function

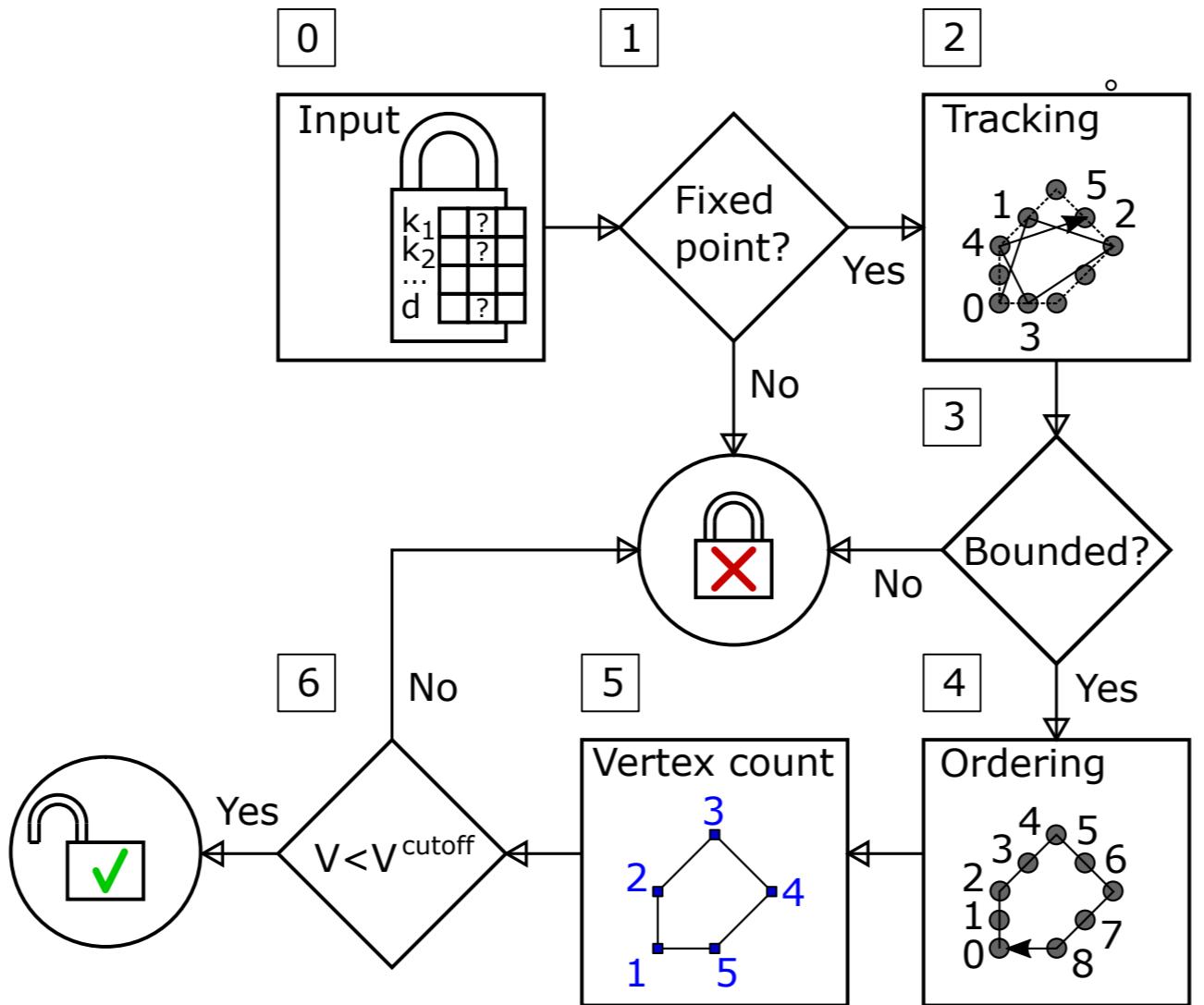


Consider symplectic map of the plane in standard form:

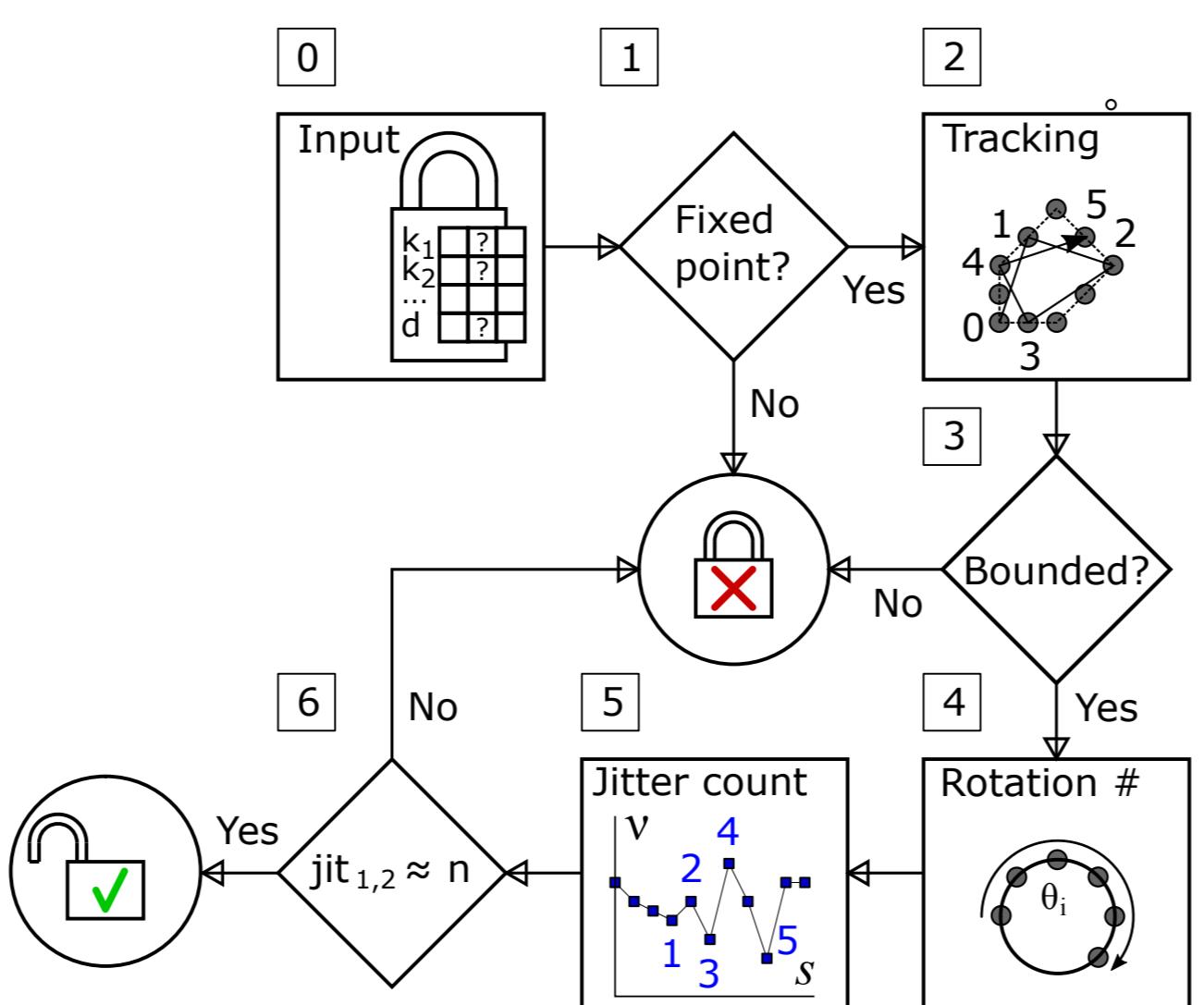
$$q' = p, \\ p' = -q + f(p),$$

with regular, periodic, mod L and arithmetically quasiperiodic piecewise linear force functions $f(q)$.

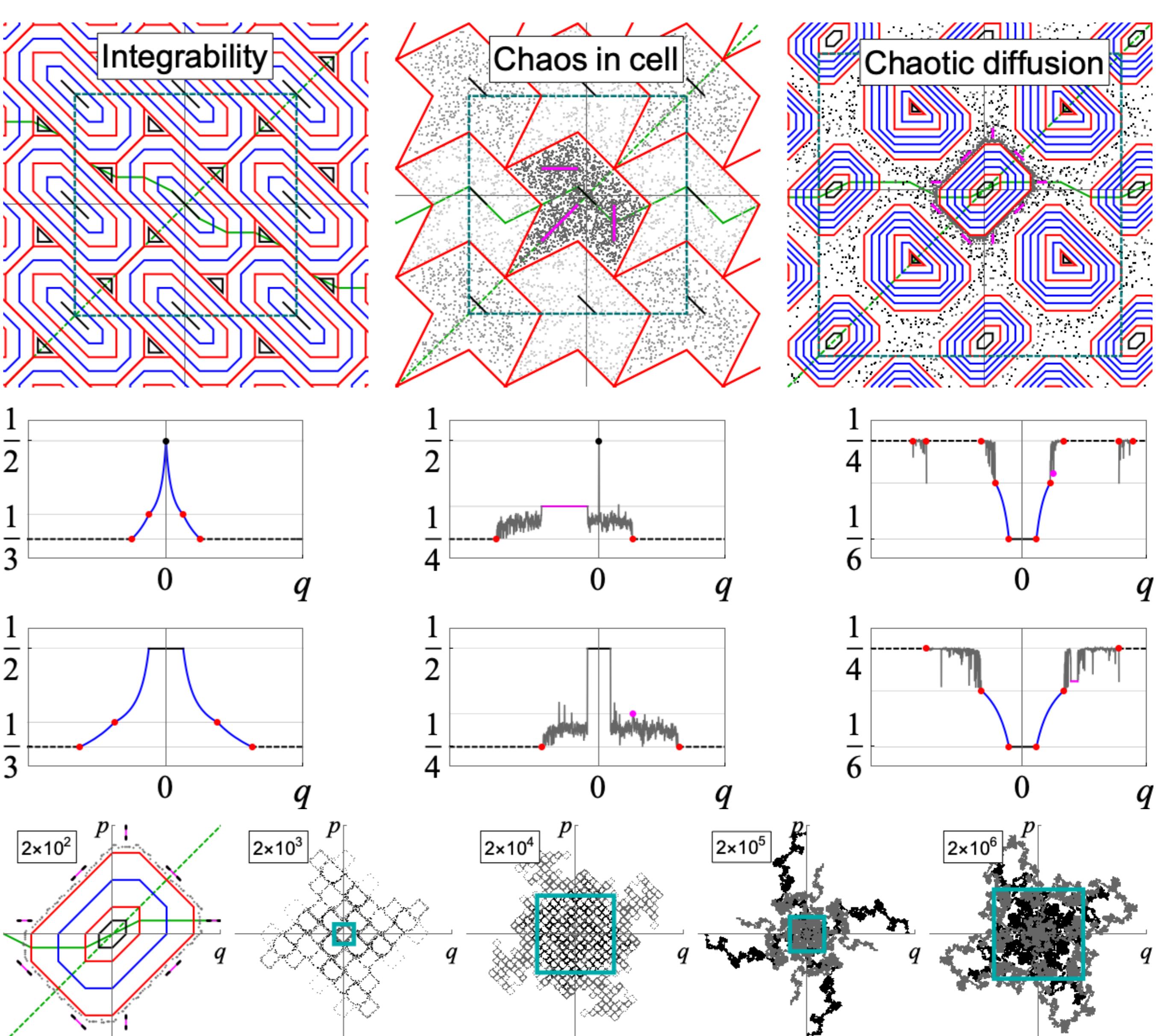
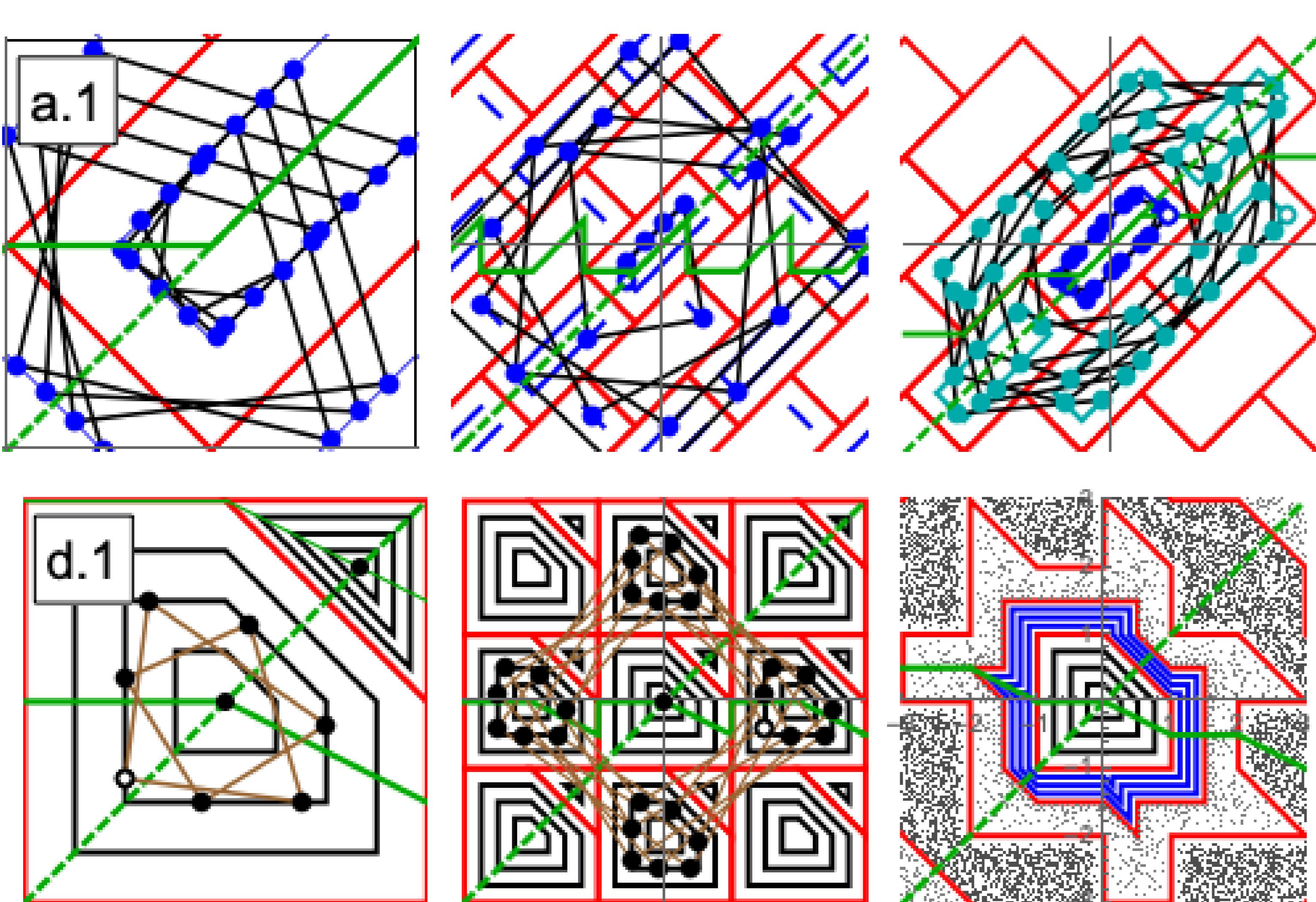
Algorithm #1



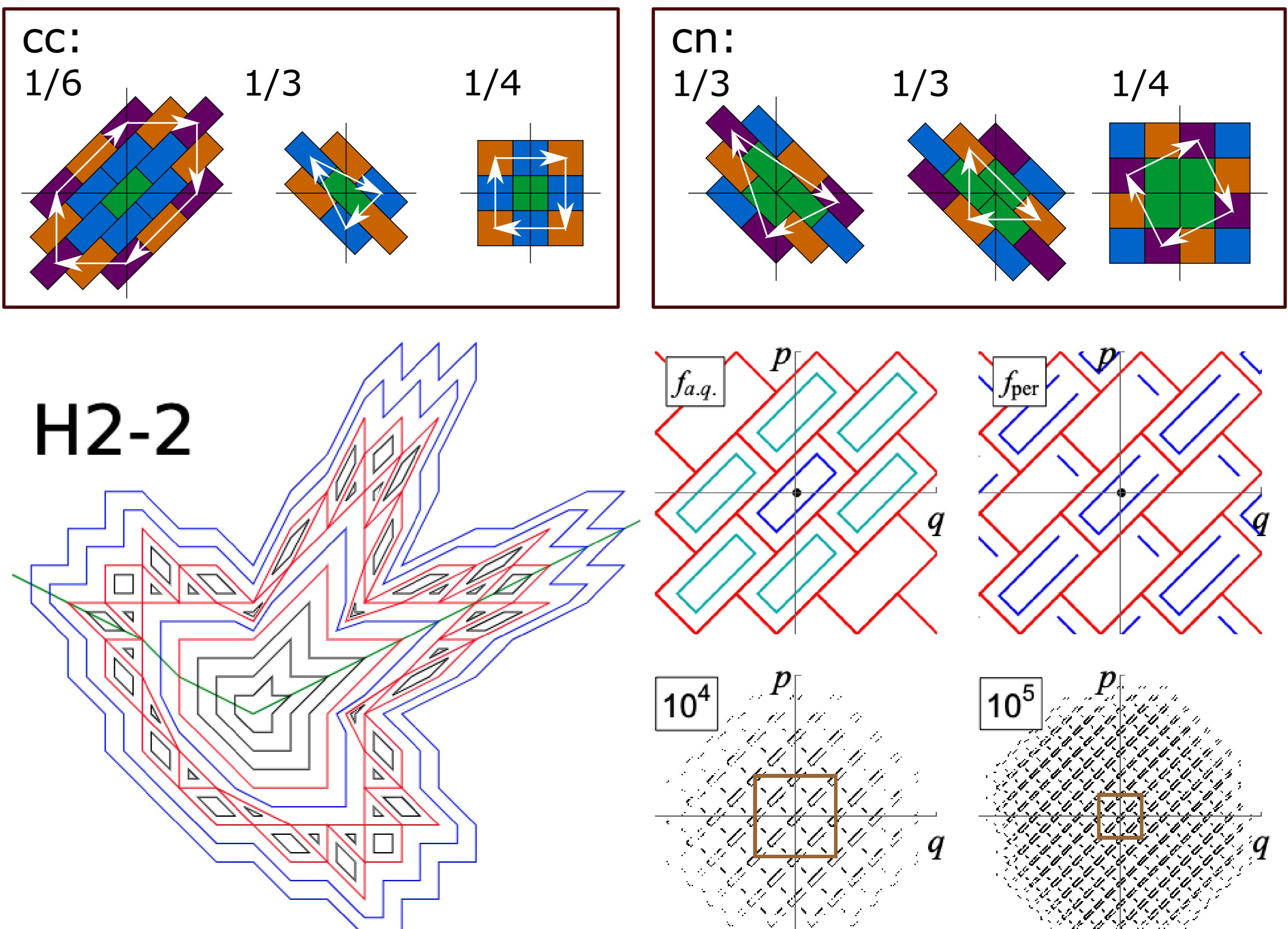
Algorithm #2



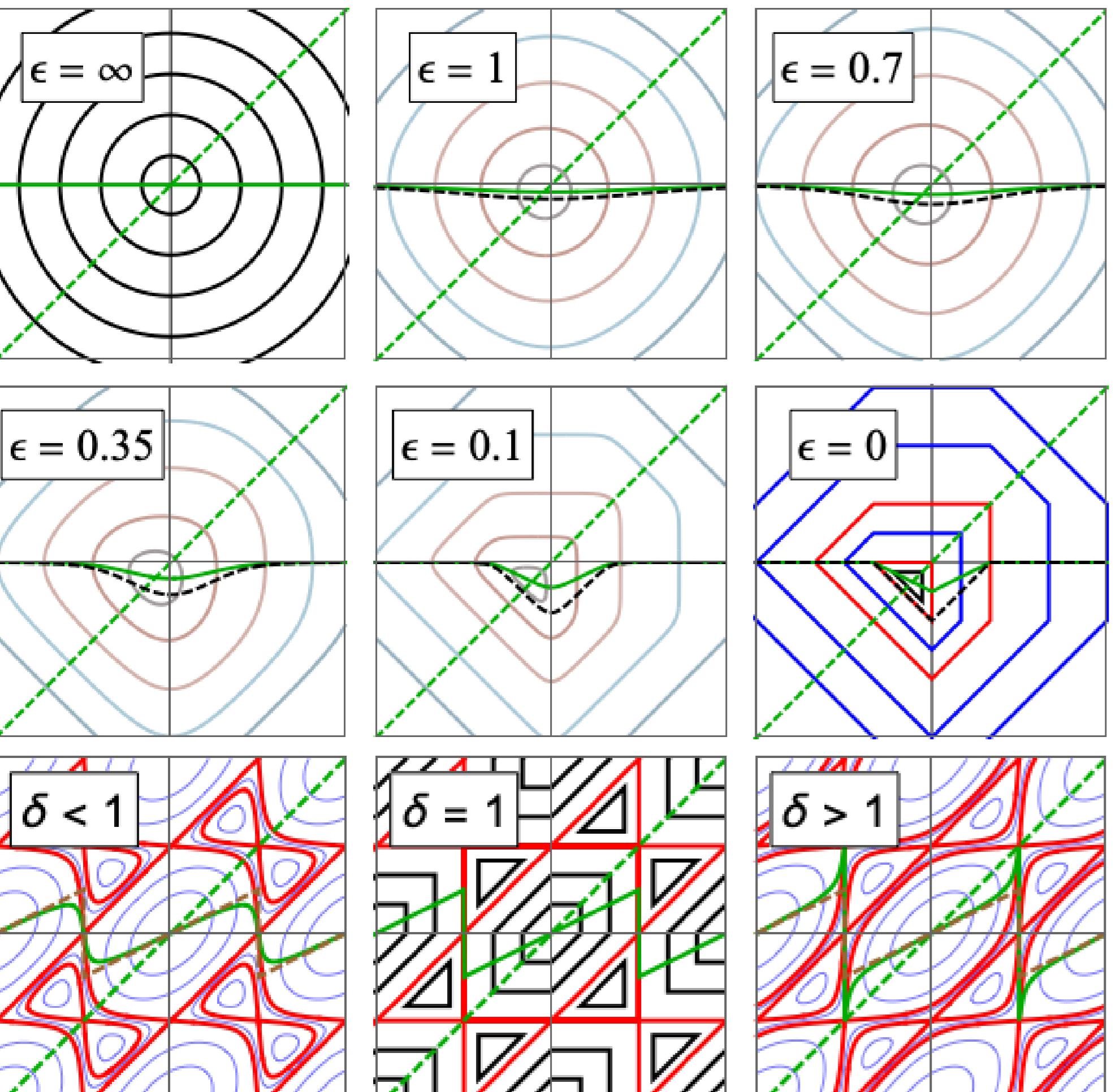
Chaos detection

Dynamics on torus & Periodic and arithmetically quasi-periodic $f(q)$ 

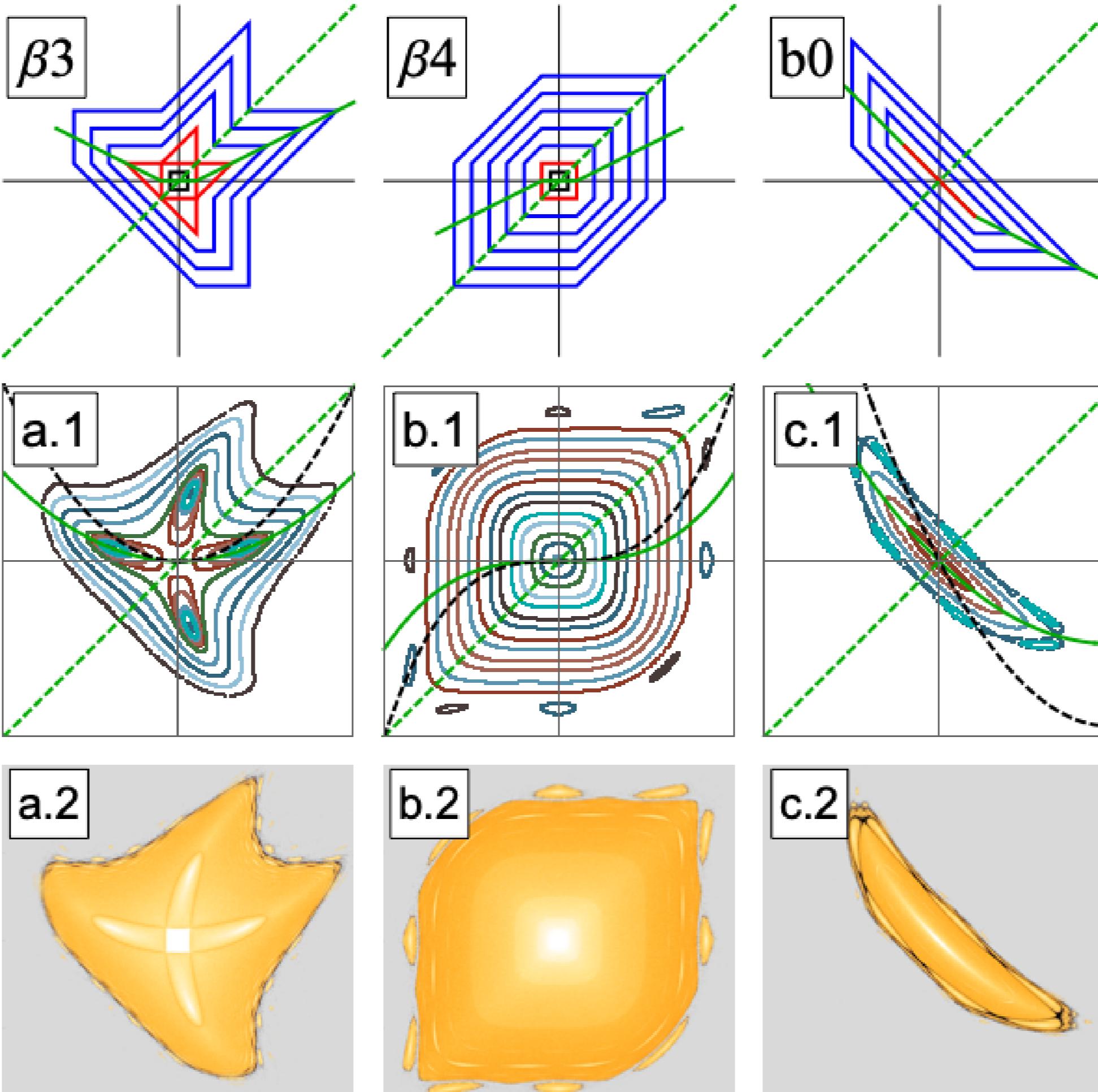
Linear islands, global mode-locking & Integrable diffusion



Connection to Painlevé and McMillan-Suris mappings



Discrete perturbation theory



Smoothening procedure

