

from *Analytical Dynamics* by Hand and Finch.

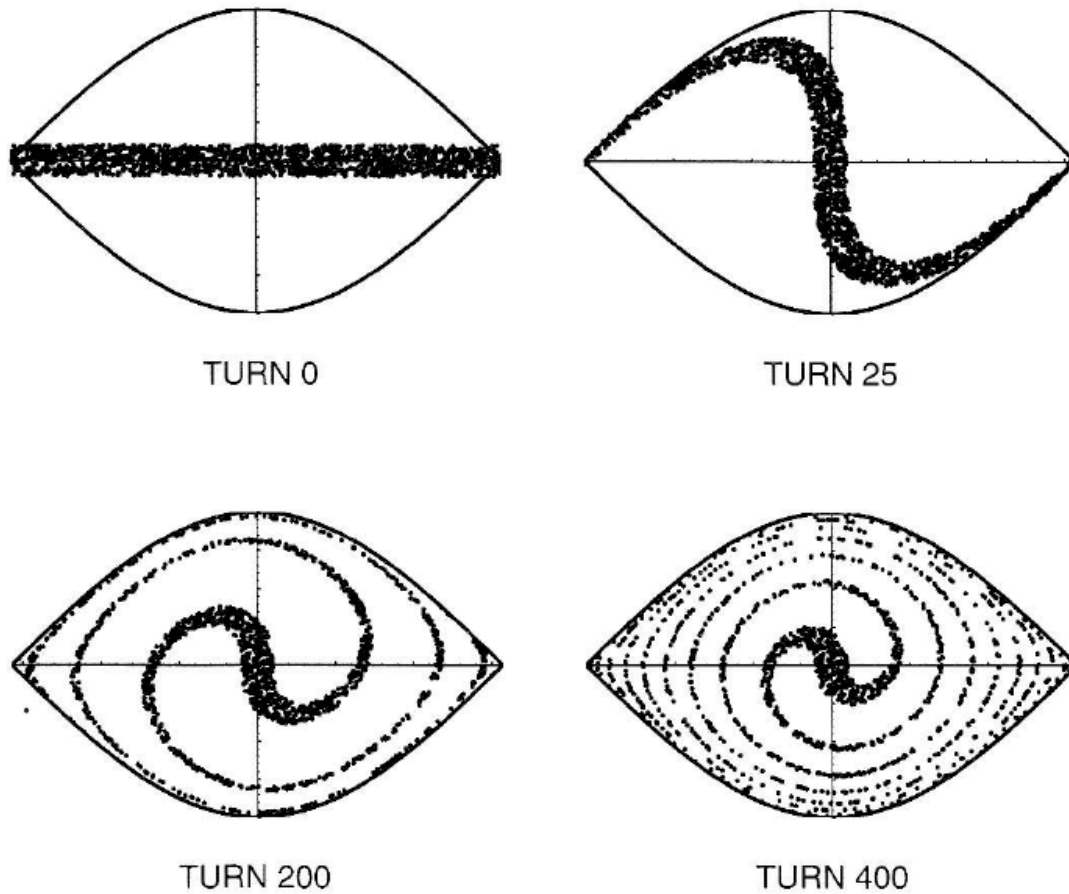


FIGURE 5.8
Capture of debunched beam with fast turn-on.

This is a phase-space map from a computer simulation of electrons in an accelerator. Apparently the model is isomorphic to a pendulum with large amplitude oscillation. The envelope is the usual “separatrix.” Inside the separatrix, particles have stable orbits. The phase space volume occupied remains constant but undergoes “filamentation.” Accelerator physicists would like to compress phase space volume. Liouville’s theorem prevents it. Chaotic systems undergo filamentation in a more radical fashion.