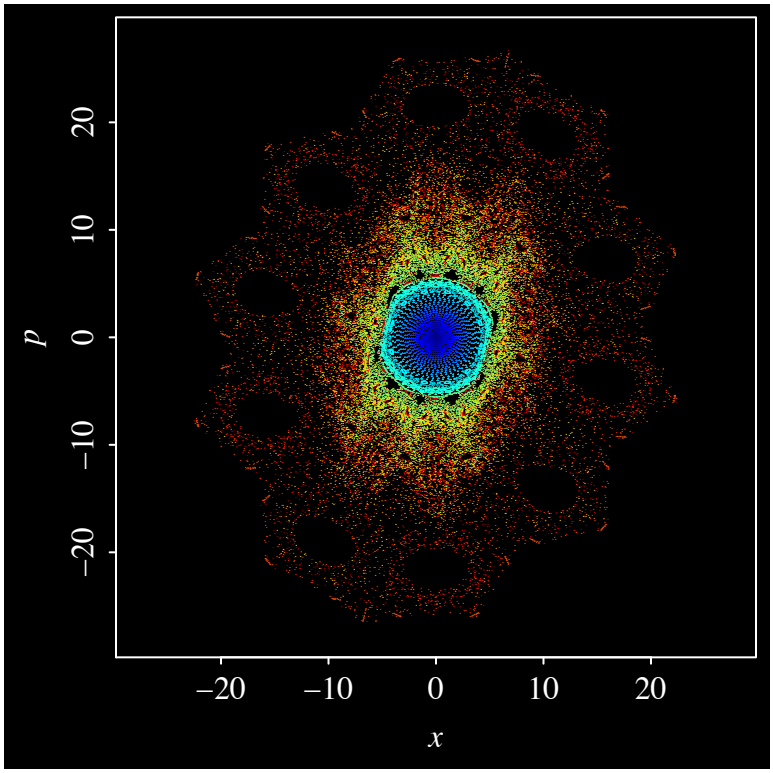
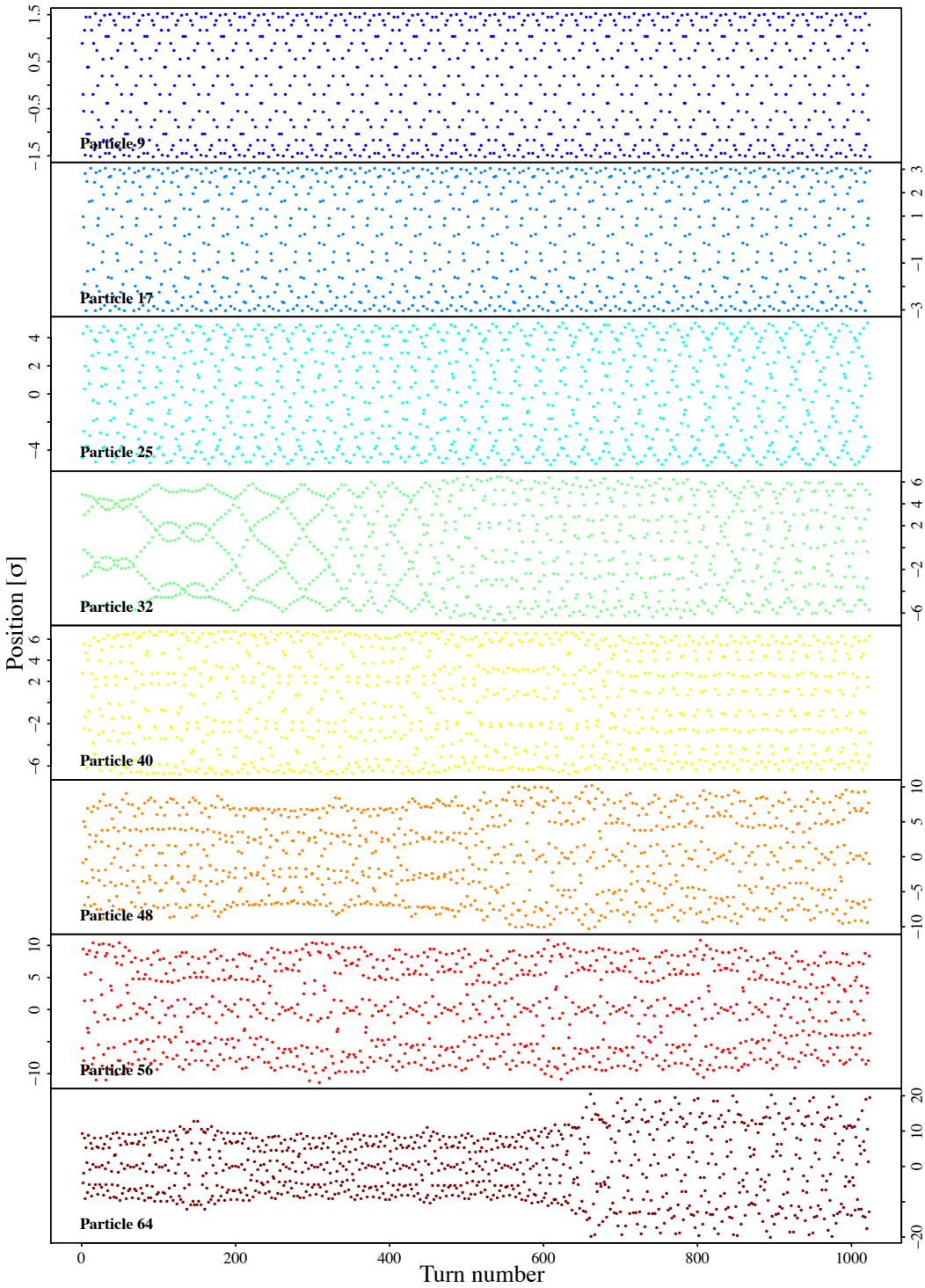
Numerical tracking in linear machine (*Q = 0.58*) with strong nonlinear element (hollow e-lens)

64 particles, 1024 turns

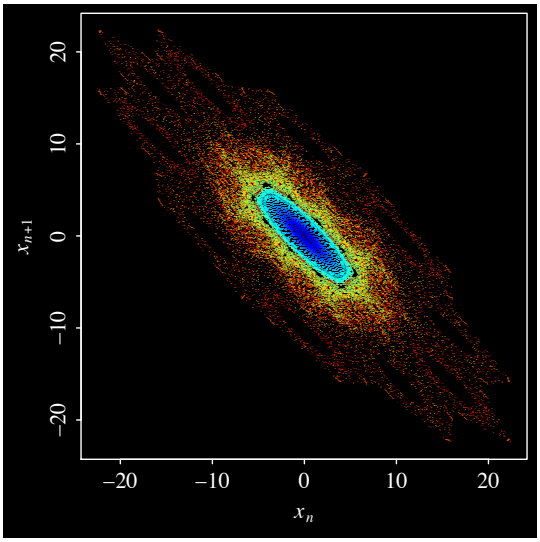


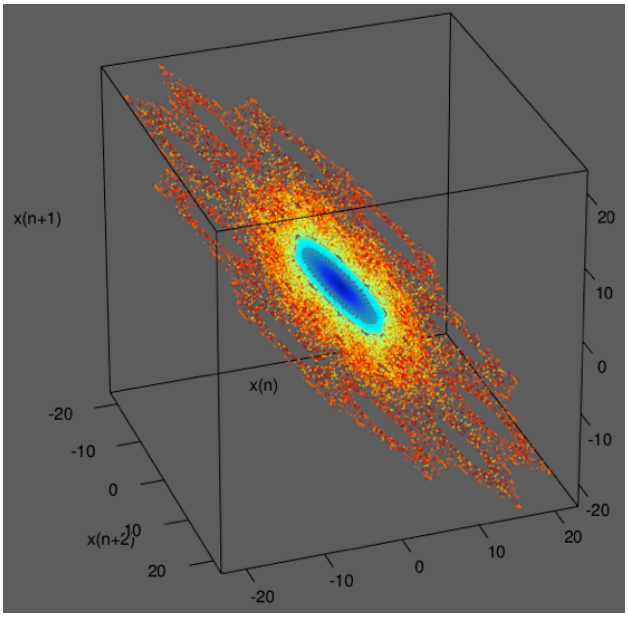
Phase-space plot

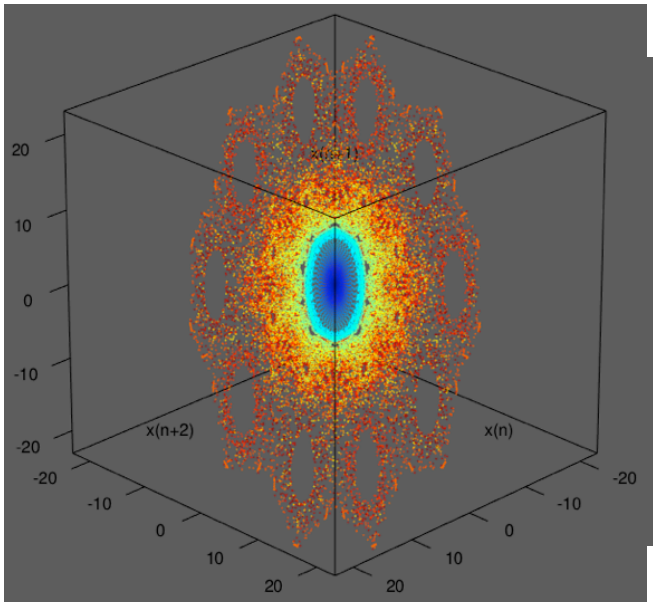
Turn-by-turn position of a few sample particles

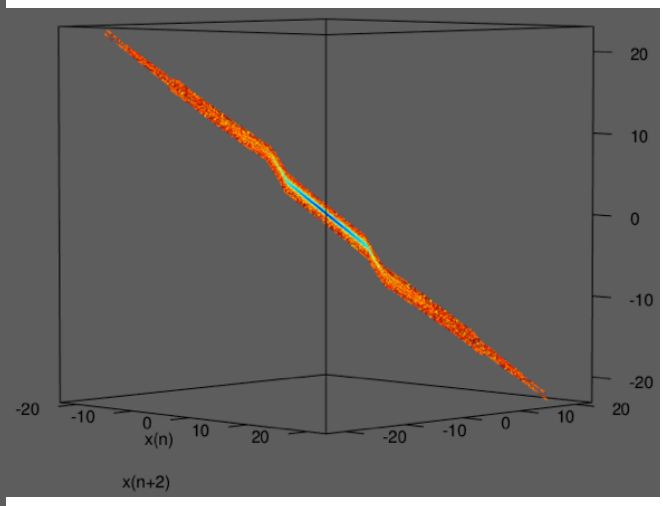


Attractor reconstruction from delayed turn-by-turn positions



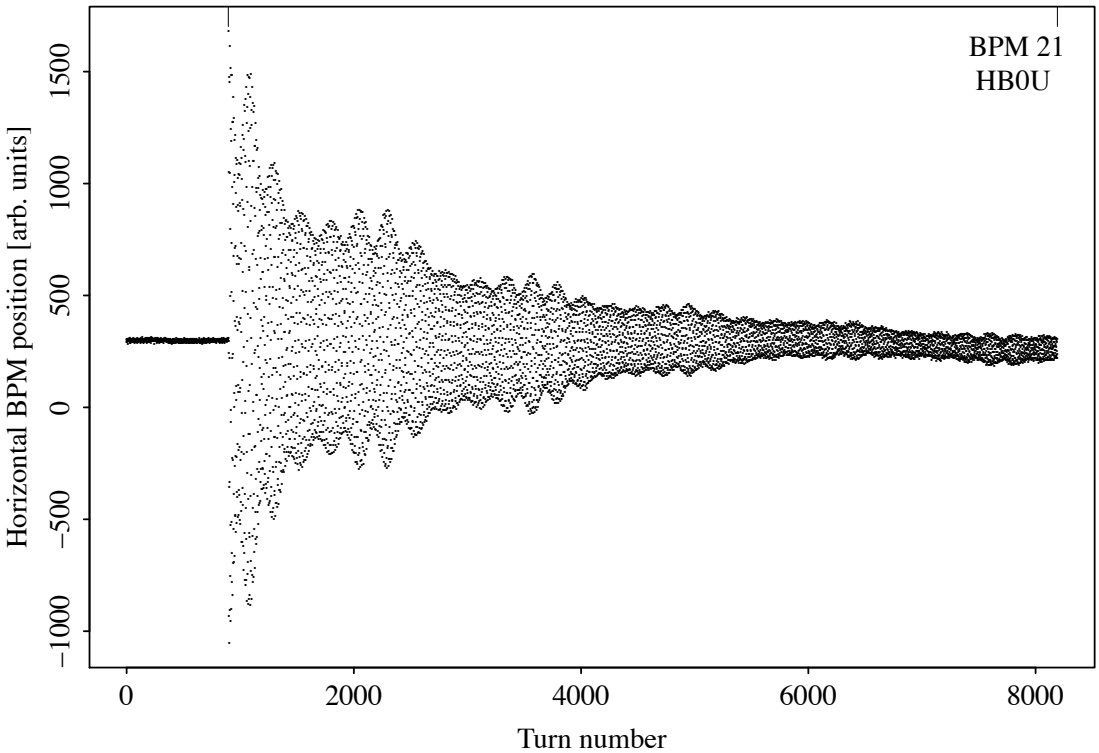


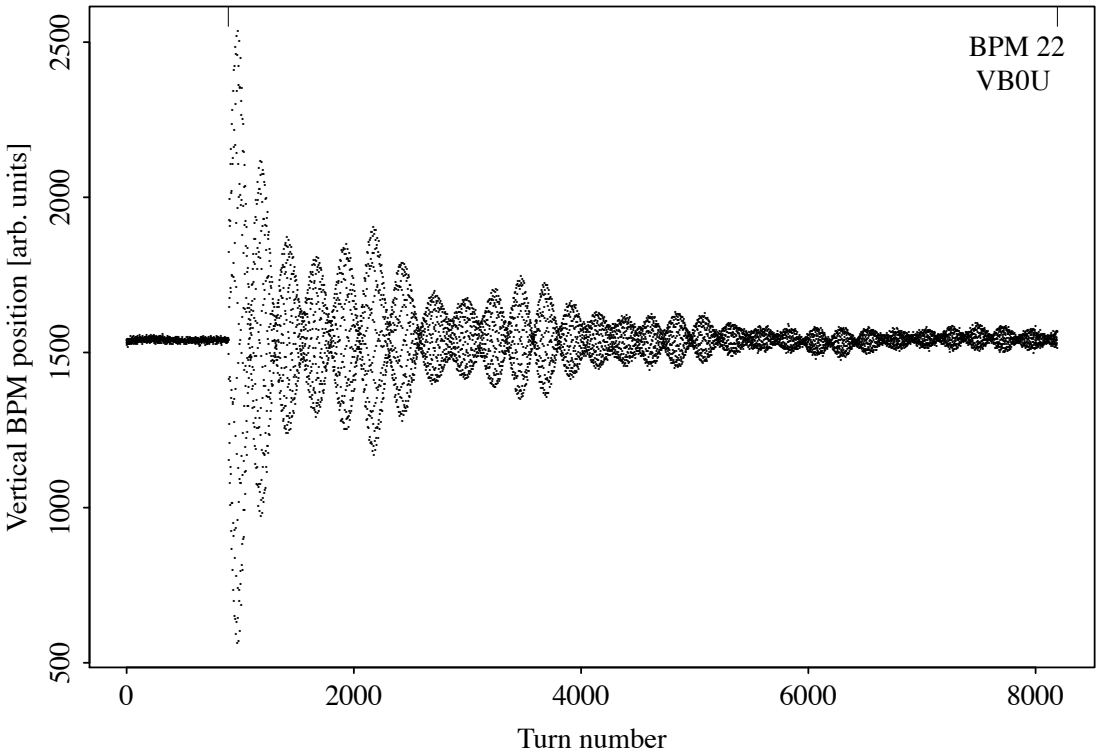




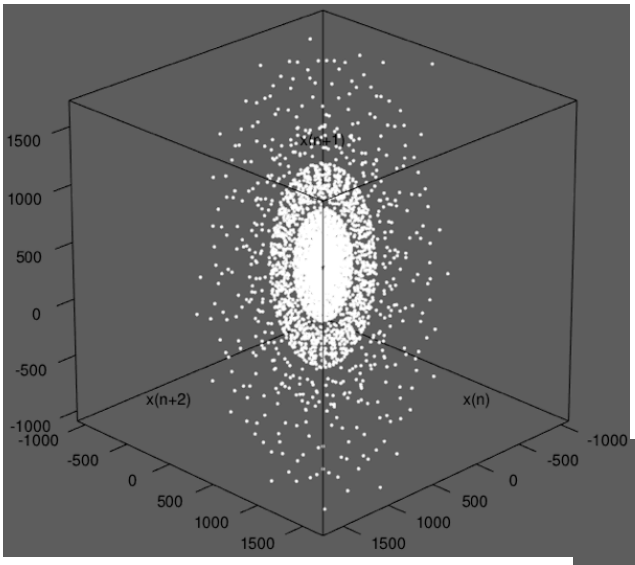
- The topology of the attractor is preserved
- A cut of the attractor shows the shape of the nonlinearity

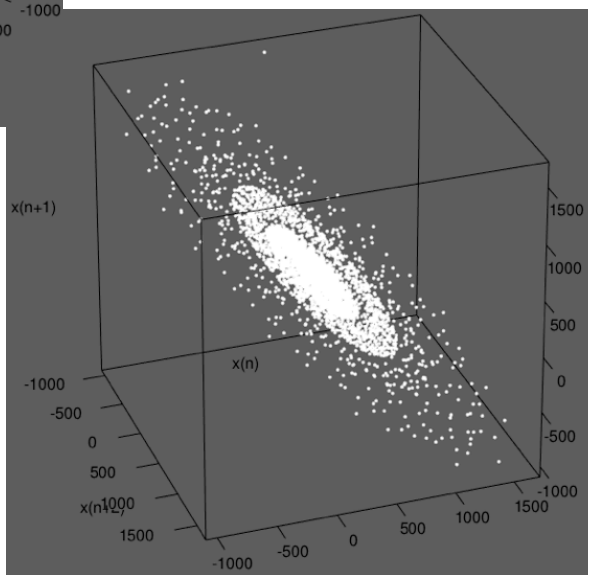
Tevatron BPM data (LOCO measurements)

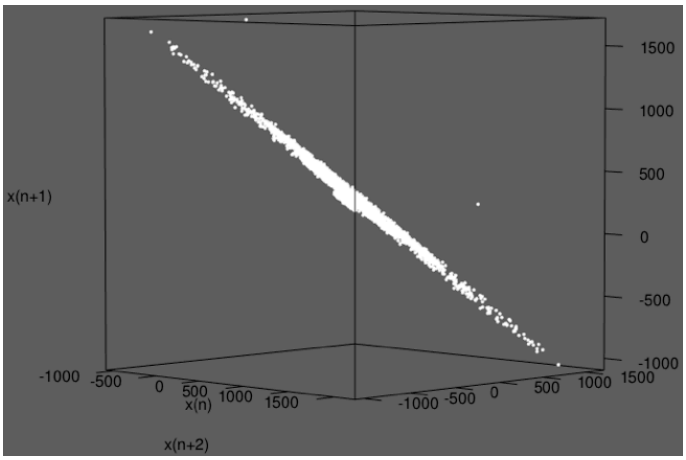




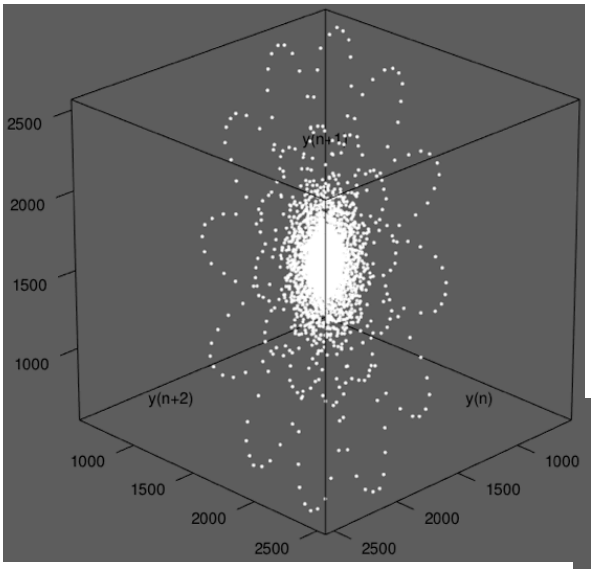
Attractor reconstruction from delayed turn-by-turn <u>measured</u> positions, horizontal

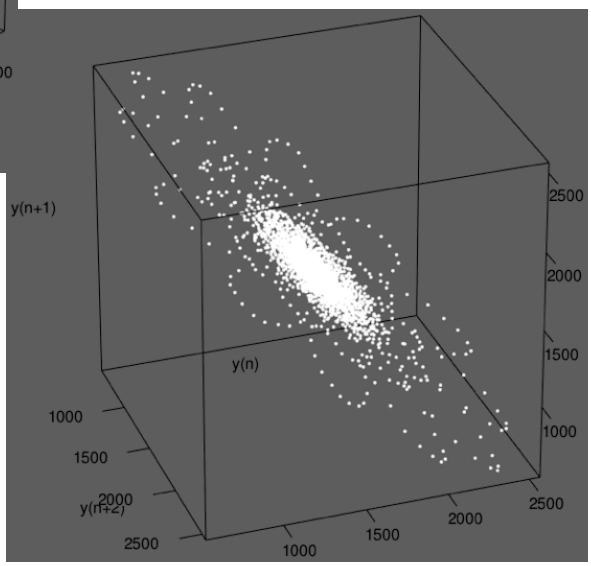


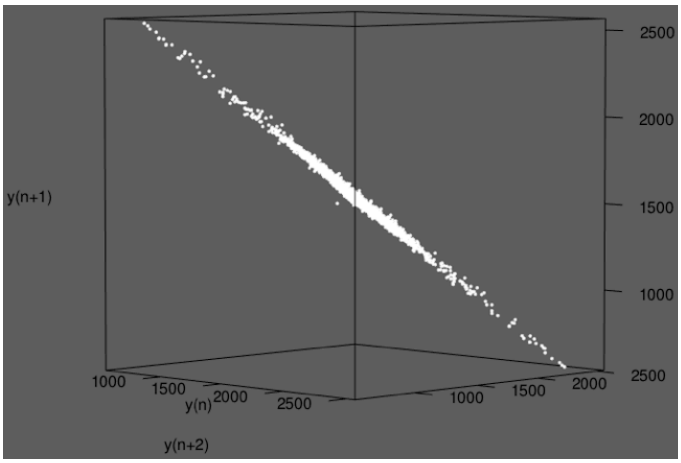




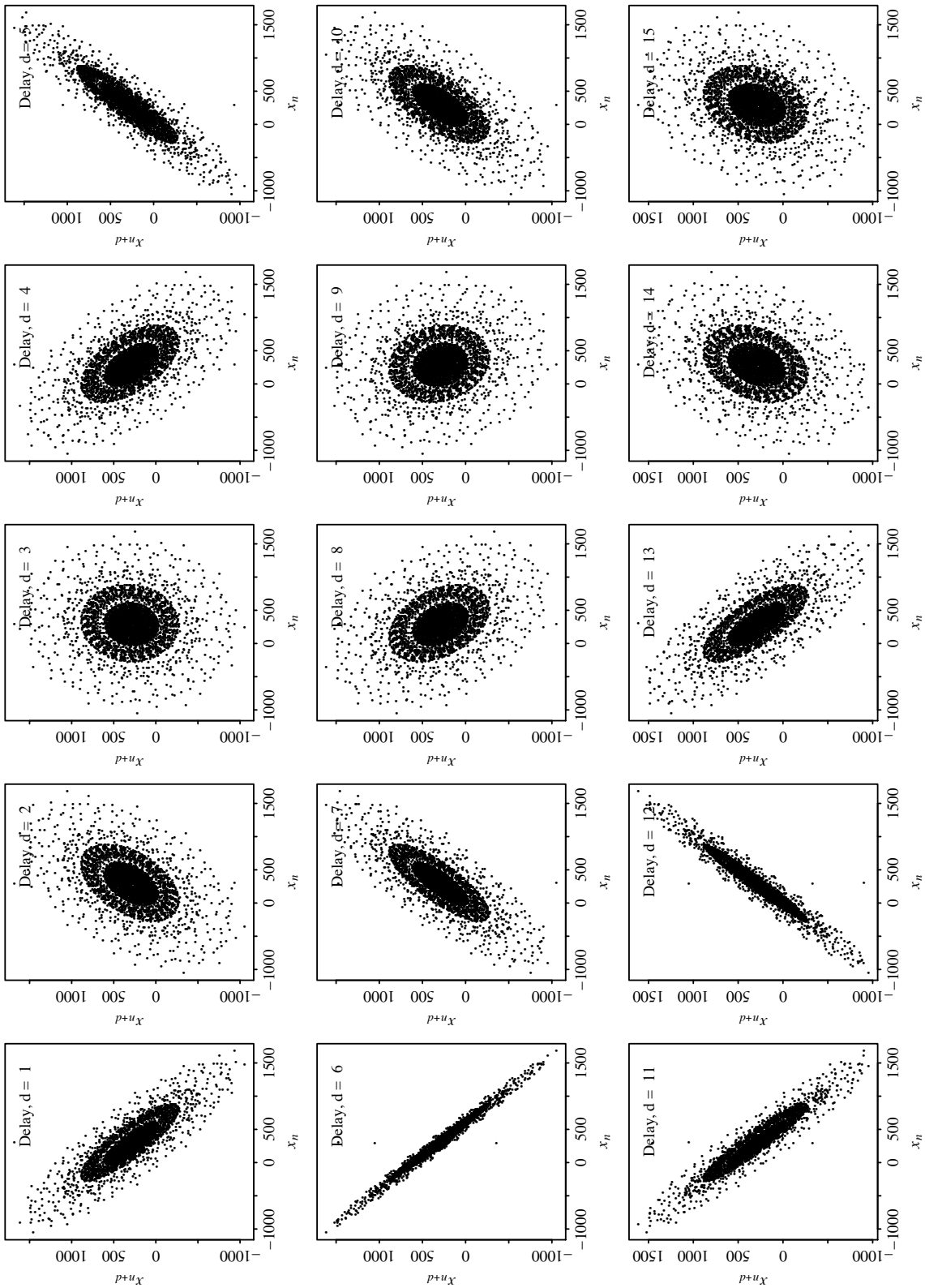
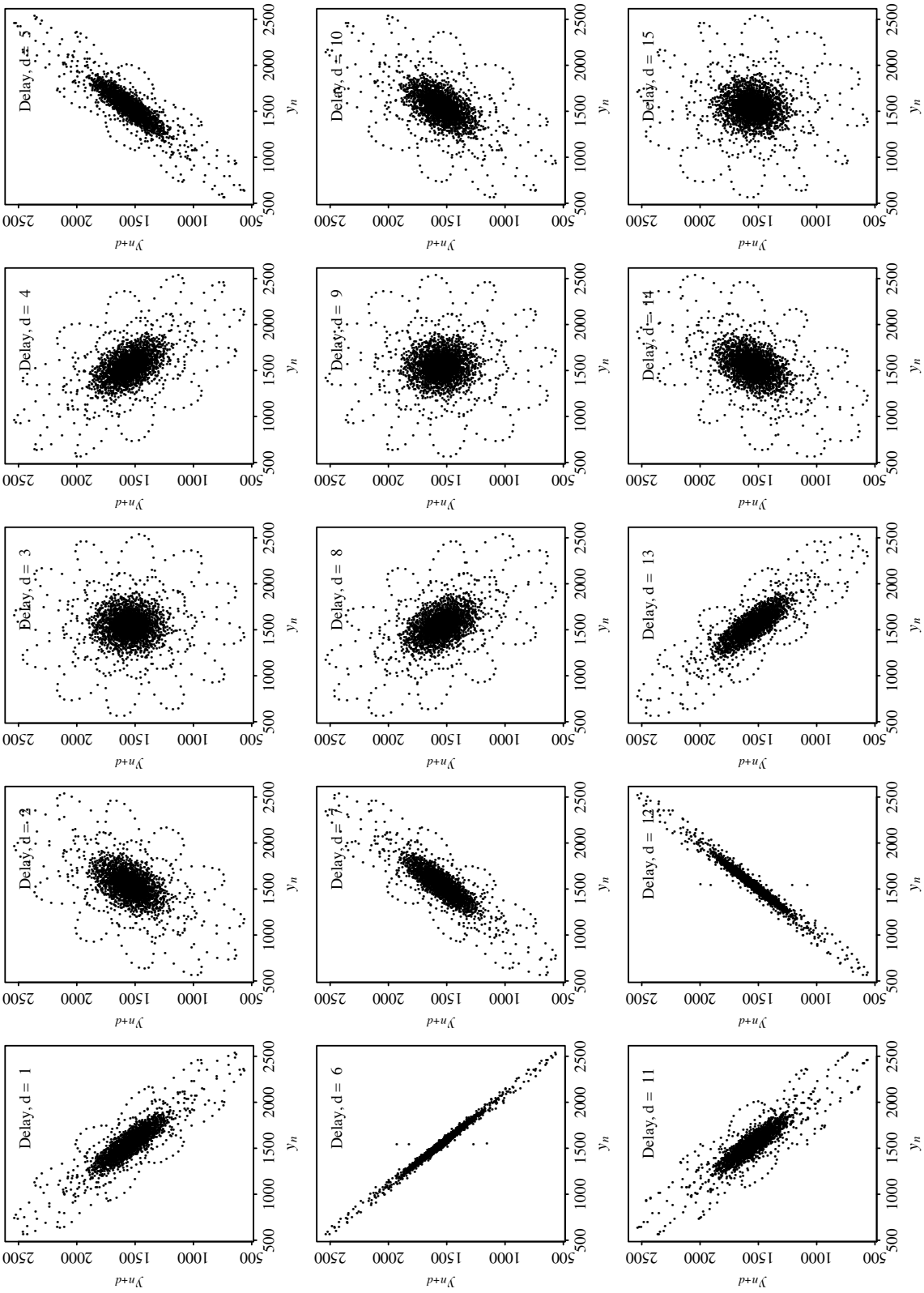
Attractor reconstruction from delayed turn-by-turn <u>measured</u> positions, vertical







2D correlations vs. delay, horizontal



2D correlations vs. delay, vertical