Suppose we have measured a true IID variable
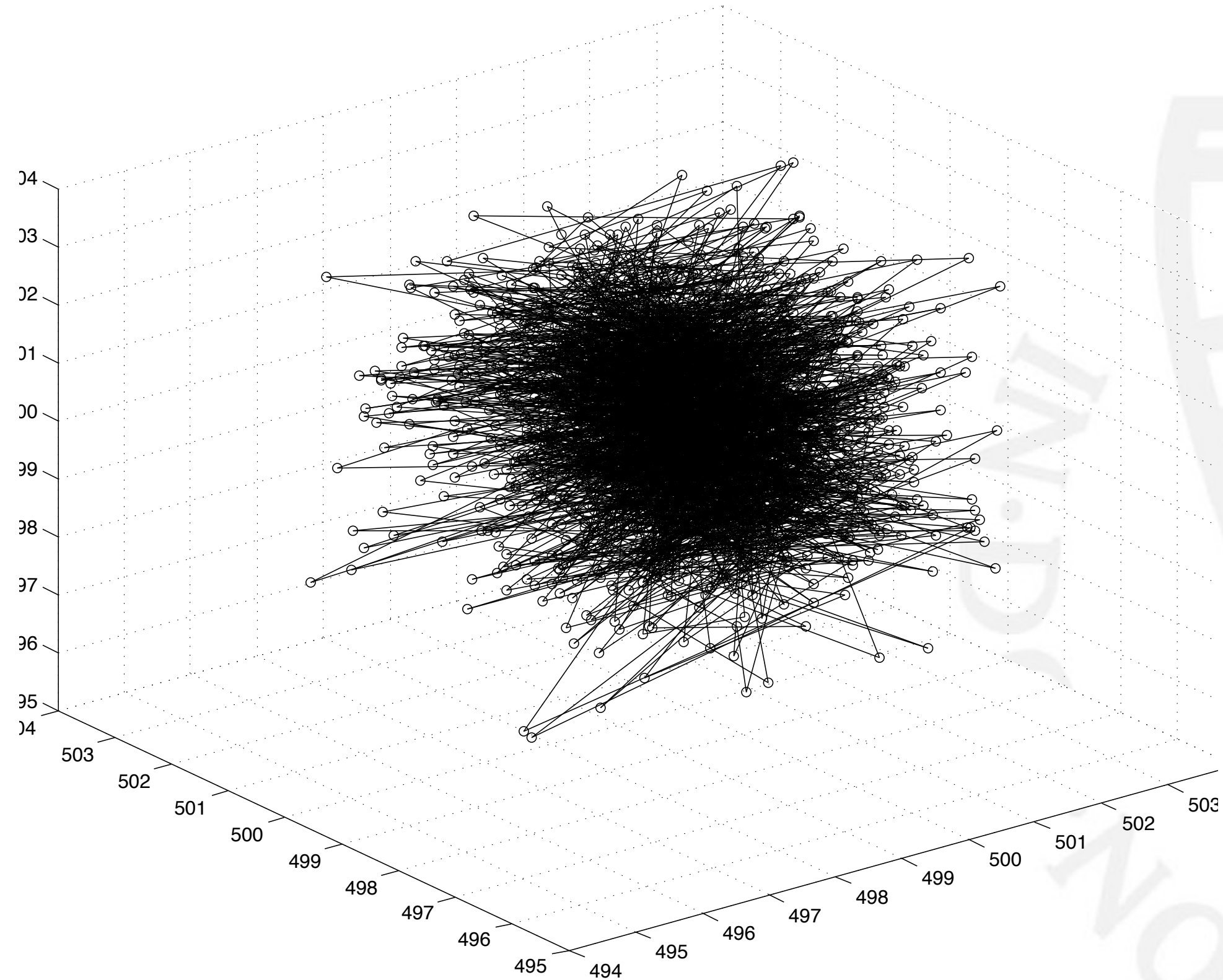
Another familiar example: Predator-Prey dynamics

State Space of Predator-Prey dynamics with RK4 integration.

Time Series of Predator-Prey dynamics with RK4 integration.