Minimal representatives and the Lorenz equations

Abstract:

A minimal representative for a dynamical system is a system that has the simplest possible dynamics in its topological equivalence class. This is very much related to "dynamical forcing": when existence of certain periodic orbits forces existence of others. This is quite useful in the analysis of chaotic systems. I'll give examples of minimal representatives in dimensions one, two and three. In dimension three, I'll show that the minimal representative for the chaotic Lorenz equations (for the correct parameters) is the geodesic flow on the modular surface. This will be an introductory talk.