Analysis Seminar

Title: Embedding the dynamics of Lorenz maps in linear systems

Speaker: T. Samuel (Bremen)

Date: Tue 12th February 2013 at 3:00PM

Location:

Abstract: In 1965 Parry proved that any topological mixing interval map with a finite number of discontinuities is topologically conjugate to a unique piecewise continuous map $U : [0,1] o [0,1]$ whose derivative is constant everywhere, apart from at a finite number of points. When restricting to Lorenz maps, Hubbard and Sparrow and independently Barnsley, Harding and Vince proved that the kneading sequence of the critical point fully determines U. In this talk I will begin by reviewing these results and then I would like to present recent joint work with Nina Snigireva and Andrew Vince. Necessary and sufficient conditions for the dynamics of a given Lorenz map to be fully embedded in the dynamics of a uniform Lorenz map will be discussed. As an application of this embedding result, we describe a simple algorithm for calculating the topological entropy of a Lorenz map. If time permits, the talk will then end with some related open questions, which Snigireva and I are currently working towards solving. (This is joint work with N. Snigireva (University College Dublin) and A. Vince (University of Florida)