

Schedule

The 2019 Fall Program of Low-Dimensional Dynamics

Week 6 (Oct. 15 - Oct. 19)

Tuesday (Oct. 15)		Gu Lecture Hall, SCMS	
9:30 – 11:30		Jiangong You	
14:30 – 16:30		Barazs Barany	
Wednesday (Oct. 16)		Gu Lecture Hall, SCMS	
9:30 – 11:30		Barazs Barany	
14:30 – 15:30		Jiangong You	
15:30 – 16:00		Tea Break	
16:00 – 17:00		Jiangong You	
Thursday (Oct. 17)		Gu Lecture Hall, SCMS	
9:30 – 11:30		Jiangong You	
14:30 – 16:30		Barazs Barany	
Friday (Oct. 18)		Gu Lecture Hall, SCMS	
9:30 – 11:30		Barazs Barany	
14:30 – 16:30		Richard Sharp	
Saturday (Oct. 19)		Gu Lecture Hall, SCMS	
9:20 – 10:20		Lei Yang	
10:30 – 11:30		Richard Sharp	
14:30 – 17:30		Free Discussion	

(1) 10月15-18日

Lecture series by Barazs Barany (Budapest, Hungary)

Title: Dimension theory of self-affine sets and measures

Abstract: The dimension theory of iterated function systems is well understood when the maps are conformal transformations and there is separation between the cylinders. However, the situation becomes significantly harder when the maps are non-conformal, even when they are general affine transformations. This series of lectures is devoted to calculate the Hausdorff dimension of planar self-affine sets and measures. We go through the basic and classic results of Falconer as well as the recent developments. The talks are based on two papers, which are joint with Antti Kaenmaki, and Mike Hochman and Ariel Rapaport.

(2) 10月15-18日

Lecture series by Jiangong You (Nankai University)

Title: Dynamical system approach to the spectral theory of quasi-periodic operators

Abstract: The eigenvalue equations of a quasi-periodic Schrodinger operator naturally define a family of lower dimensional dynamical systems. The study of the dynamics of this family of systems, including Lyapunov exponents, rotation number, uniformly and non-uniformly hyperbolicity, is a fascinating subject in the theory of dynamical systems. More importantly, it provides an approach to the study of the spectral theory of quasi-periodic operators, including the spectrum, integrated density of states, spectral measure, Anderson localization. In this lecture, I will give a brief introduction to this subject.

(3) 10月18-19日

Lecture series by Richard Sharp (Warwick, UK)

Title: Equidistribution of periodic orbits

Abstract: A classical theorem of Bowen says that periodic orbits of hyperbolic diffeomorphisms and flows are on average equidistributed with respect to the measure of maximal entropy as the periods tends to infinity. Hannay--Ozorio de Almeida and Parry showed that, by introducing appropriate weightings, the SRB measure of an attractor may also be obtained in this way. Parry also showed that other Gibbs states could be obtained as a limit by varying the weighting. We will discuss different approaches to these results (dynamical zeta functions, large deviations) and more recent refinements for flows, where, for example, the window of which periods are averaged is allowed to shrink as the periods increase.

(4) 10月19日

Lecture by Lei Yang (Sichuan University)

Title: Algebraically badly approximable vectors and homogeneous dynamics

Abstract: In this talk, we will approximate real vectors by algebraic vectors and study badly approximable vectors in this setting. I will explain the connection between algebraically badly approximable vectors and badly approximable matrices. Using techniques from homogeneous dynamics and geometry of numbers, we shall show that countable intersections of sets of weighted algebraically badly approximable vectors have full Hausdorff dimension. This talk is based on an ongoing project joint with Beresnevich and Velani.