Mini-workshop On Topological Dynamical Systems

Time: January 15 / Monday, 2024

Venue: Room 102, Shanghai Center for Mathematical Sciences, Fudan University (Jiangwan Campus)

Organizers: Weixiao Shen (Fudan University), Guohua Zhang (Fudan University)

For further information, please contact Guohua Zhang (zhanggh@fudan.edu.cn).

Time	Speaker	Title
9:00-10:00	Ercai Chen	Group extensions for random shifts of finite type
10:00-11:00	Yujun Zhu	On the dynamics of the natural extension for certain systems
11:00-12:00	Wen Huang	Full horseshoe for the Galerkin truncations of 2D Navier-Stokes equations with degenerate stochastic forcing
Lunch Break		
14:30-15:30	Xiongping Dai	The structure of compact minimal flows
15:30-16:30	Jun Luo	多项式的极大树突因子与双可达维数
16:30-17:30	Enhui Shi	Rigidity for higher rank lattice actions on dendrites

Group extensions for random shifts of finite type
Ercai Chen
(Nanjing Normal University)

In this talk, I will present a study on the group extensions for topologically mixing random shifts of finite type and consider the natural comparison of relative Gurevič entropies between random group G and $G^{ab}=G/[G,G]$ extensions. We show that the relative Gurevič entropy of random group G extensions is equal to the relative Gurevič entropy of random group G^{ab} extensions if and only if G is amenable. *This is a joint work with K. Yang, Z. Lin and X. Zhou.*

On the dynamics of the natural extension for certain systems
Yujun Zhu
(Xiamen University)

In this talk, the topological properties (including the shadowing property and stability) and entropy for the natural extension of certain systems (including the system generated by finite maps or some group actions, or by a perturbation of map) are considered.

Full horseshoe for the Galerkin truncations of 2D Navier-Stokes equations with degenerate stochastic forcing
Wen Huang
(University of Science and Technology of China, China)

In this talk, we will introduce the existence of full horseshoe for the Galerkin truncations of 2D Navier-Stokes equations with degenerate stochastic forcing (Hypoelliptic condition). We will also review weak horseshoe and semi-horseshoe. *This is based on joint work with Jianhua Zhang.*

The structure of compact minimal flows
Xiongping Dai
(Nanjing University)

We will report some results on the a.a. flows.

多项式的极大树突因子与双可达维数

Jun Luo

(Sun Yat-Sen University)

给出极大树突因子、核熵、双可达维数这几个概念的定义，解释复动力系统的大致背景，主要介绍以下结果：(1)任意 d 次多项式 f，限制到 Julia 集(假定连通)上的子系统必定有极大树突因子；(2)极大树突因子要么退化为单点系统要么保持该多项式的拓扑熵；(3)该多项式对应到圆周的子集 B(f)，在 z➔z^d 映射下不变，其维数称作 f 的双可达维数，其闭包的维数总等于 f 的核熵。因此，Julia 集连通的所有 d 次多项式的动力学性质能以某种方式"嵌入"到圆周*d 系统的特定因子系统和子系统中，便于做系统的分析与探讨。

Rigidity for higher rank lattice actions on dendrites

Enhui Shi

(Soochow University, China)

Let G be a higher rank lattice and X be a dendrite with no infinite order points. We show that every action of G on X is a highly proximal extension of an almost finite action. *This is a joint work with Hui Xu.*