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For Favour of Posting

數學系
香港中文大學

Seminar

Dynamical Topology

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Abstract

The area of dynamical systems where one investigates dynamical properties that can be described in topological terms is called "Topological Dynamics". Investigating the topological properties of spaces and maps that can be described in dynamical terms is in a sense the opposite idea. This area is called "Dynamical Topology".

For (discrete) dynamical systems given by compact metric spaces and continuous (surjective) self-maps I will mostly be talking about two new notions: "Slovak Space" and "Dynamical Compactness". Slovak Space is a dynamical analogue of the rigid space: a nontrivial compact metric space whose homeomorphism group is cyclic and generated by a minimal homeomorphism.

Dynamical Compactness is a new concept of chaotic dynamics. The omega-limit set of a point is a basic notion in theory of dynamical systems and means the collection of states which "attract" this point while going forward in time. It is always nonempty when the phase space is compact. By changing the time we introduced the notion of the omega-limit set of a point with respect to a Furstenberg family. A dynamical system is called dynamically compact (with respect to a Furstenberg family) if for any point of the phase space this omega-limit set is nonempty. A nice property of dynamical compactness: all dynamical systems are dynamically compact with respect to a Furstenberg family if and only if this family has the finite intersection property.

Based on a work by Tomasz Downarowicz, Lubomir Snoha and Dariusz Tywoniuk, and joint works with Wen Huang, Danylo Khilko, Alfred Peris, Julia Semikina and Guohua Zhang.

Part I

Date: 21 March 2018 (Wednesday)

Time: 4:30pm – 5:30pm

Venue: Room 219, Lady Shaw Building,
The Chinese University of Hong Kong, Shatin

Part II

Date: 23 March 2018 (Friday)

Time: 11:00am – 12:00noon

Venue: Room 222, Lady Shaw Building,
The Chinese University of Hong Kong, Shatin

All are Welcome