校庆一百一十七周年暨五十六届科学报告讨论会

时间：5 月 26 日 14:00-16:25
腾讯会议：316418862

Chair: Weixiao Shen (沈维孝)

Lecture 1　　14:00-14:45　Speaker: Hehui Wu(吴河辉)

Title: Orientations of Graphs with Forbidden out-degree Lists

Abstract: Let G be a graph and $F: V(G)\mapsto 2^\mathbb{N}$ be a mapping. The graph G is said to be F- avoidable if there exists an orientation D of G such that for each vertex v, the out-degree $d^+_D(v)\not\in F(v)$. It was conjectured by Akbari, Dalirrooyfard, Ehsani,Ozeki and Sherkati that if $|F(v)|\le (d(v)-1)/2$ for each vertex v, then G is F-avoiding , and they showed that $|F(v)|\le d(v)/4$ suffices. By using Combinatorial Nullestellensatz theorem, we improve the bound to $|F(v)|\le [d(v)/3]$. Furthermore, if the maximum degree is sub-exponentail of the minimum degree δ, then if $|F(v)|\le \(sqrt{2}-1-o(1))d(v)\approx (0.41+o(1))d(v)$ for each vertex v, then G is F-avaidable.

This is joint work with Peter Bradshaw, Bojan Mohar in Simon Fraser University, and my students Yaobin Chen, Hao Ma in Fudan University.

Lecture 2　　14:50-15:35　Speaker: Yulan Qing (卿于兰)

Title: Boundaries of Groups: heading for infinity

Abstract: Gromov boundary plays a central role in many aspects of geometric group theory. In this study, we develop a theory of boundary when the condition on hyperbolicity is removed: For a given proper,

geodesic metric space X and a given sublinear function κ, we define the κ-boundary, as the space of all κ-Morse quasi-geodesics rays. The sublinearly Morse boundary is QI-invariant and thus can be associated with the group that acts geometrically on X. For a large class of groups, we show that sublinearly Morse boundaries are large: they provide topological models for the Poisson boundaries of the group. Furthermore, we provide compaction of the boundary when the space is asymptotically tree-graded. This talk is based on several joint projects with Ilya Gekhtman, Kasra Rafi and Giulio Tiozzo.

Lecture 3　　15:40-16:25　Speaker: Jianchao Wu（吴健超)

Title: On the classification of C*-algebras arising from amenable topological dynamical systems

Abstract: A recurring motivation for the study of operator algebras (in particular, C*-algebras and von Neumann algebras) is their close ties with (topological or measure-theoretical) dynamical systems. In the measure-theoretic setting, Connes' Fields-medal-winning work on the classification of amenable simple separable von Neumann algebras help bring about the classification of amenable ergodic systems (up to orbit equivalence). The topological setting is more delicate: the Elliott program to classify well-behaved amenable simple separable C*-algebras using a K-theoretic invariant reached success only fairly recently, and its interactions with amenable topological dynamical systems is under active research. I will survey these developments and end with a few of my results (from collaborations with Bosa, Hirshberg, Ma, Perera, Szabó, Winter, and Zacharias) on the classifiability of C*-algebras arising from amenable topological dynamical systems.