

华东地区几何拓扑学讨论班

南京大学数学系 (2019.5.26)

报告人: 蔡力 (西交利物浦大学)

报告题目: KO groups of toric manifolds

报告摘要: (Quasi)Toric manifolds are closed smooth manifolds with locally standard torus actions and they generate the complex cobordism ring. In this talk I will give a presentation of the KO groups (real topological K-groups) of a toric manifold M , which is closely related to the cohomology of small covers being the fixed points of a special involution on M . Moreover, we show that the KO groups of M are torsion free if and only if the corresponding small cover is rationally acyclic and has only 2-torsion in cohomology. This is a joint work with Suyoung Choi and Hanchul Park.

报告人: 杨会军 (河南大学)

报告题目: 流形上的(稳定)近复结构

报告摘要: 判定一个流形上是否存在复结构、辛结构或者切触结构等几何结构, 是几何学中的基本问题。而流形上存在(稳定)近复结构, 是上述几何结构存在的必要条件。本报告将重点关注流形上(稳定)近复结构的存在性问题。我将会介绍(稳定)近复结构的定义, 及其与上述几何结构的关系, 处理该问题的常用方法、取得的进展以及我做的一些工作。部分工作是我与 Diarmuid Crowley 合作完成的。

报告人: 马继明 (复旦大学)

报告题目: Algebraic fibration of certain hyperbolic 4-manifolds

报告摘要: Algebraic fibration is a generalization of the fibered 3-manifold in higher dimensions. For the 24-cell P and 120-cell E , which can be realized as right-angled polytopes in the 4-dimensional hyperbolic space. There are canonical manifolds associated to them, that is, the so called real moment-angle manifolds over them. Jankiewicz-Norion-Wise showed that the fundamental groups of these two manifolds are algebraic fibered, that is, there is a surjective map from the fundamental group to the infinite cyclic group with finite generated kernel-group. We show the fibered-kernel groups above are not FP_2 , in particular, the fibered-kernels are finite generated, but not finite presented groups. This is a joint work with Fangting Zheng.

报告人: 陈智 (合肥工业大学)

报告题目: 一种导出链环不变量的 R 矩阵构造以及相关的范畴论性质

摘要: 作为 Turaev 的“增强 R -矩阵”的推广我们引进一种“扩张 R -矩阵”, 每一个扩张 R -矩阵能给出一个可定向链环不变量。在此基础上利用一些简单的代数几何我们引进一种无限维的 R 簇, 以及一种取值于其代数函数环的链环不变量。这种链环不变量包含 WRT 不变量, 也可能包含所有的 Dijkgraaf-Witten 不变量。但是目前不知道如何抽取几何信息, 以及它和 Kontsevich 积分的关系。此外我们详细讨论扩张 R -矩阵的直和, 直积等范畴论性质, 希望能从中找出一些有趣的代数结构。