




复旦大学数学科学学院
数学综合报告会

报告题目：New families of moment-angle manifolds diffeomorphic to connected sums of products of spheres

报告人：Professor Taras Panov (Steklov Mathematical Institute)

时间：2026-11-10 星期二 15:30-16:30

地点：光华东主楼1801

报告摘要：

Moment-angle manifolds Z_K are a family of framed manifolds with non-Kaehler complex structures invariant under the torus action. They arise from triangulated spheres (polytopal or star-shaped) via the polyhedral product construction. We identify the diffeomorphism type of some manifolds in this family as a connected sum of products of spheres.

We prove that the moment-angle manifold Z_K is diffeomorphic to a connected sum of products of spheres when K is a star-shaped (in particular, polytopal) 3-dimensional simplicial sphere with exactly two missing edges that are not adjacent to each other. For each moment-angle manifold in this family, one of the summands of the connected sum is a product of three spheres, as in the first example found by Fan, Chen, Ma and Wang.

For neighbourly starshaped simplicial spheres K of odd dimension, we prove the diffeomorphism Z_K= M_1#...# M_k, where each M_i is a product of two spheres; thus, the result previously obtained by Gitler and López de Medrano for polytopal spheres is extended to the case of stars-haped spheres. We give an explicit description of the moment-angle manifolds corresponding to the non-polytopal Barnette and Brückner spheres.

This is a joint work with Victoria Kovyrshina, https://arxiv.org/abs/2609.19945

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