Exotic boundary Dehn twist on 4-manifolds

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Given a 4-manifold X bounded by a Seifert manifold, one can use the circle action on the boundary to define a diffeomorphism on X, called the boundary Dehn twist. Such boundary Dehn twist naturally arises as monodromy on Milnor fibrations. In this talk, we will sketch a proof (using monopole Floer homology) that some of these Dehn twists represents "exotic" elements of infinite order in the mapping class group. This talk is based on a joint work in progress with Hokuto Konno, Anubhav Mukherjee and Juan Munoz-Echaniz.

报告人简介：林剑锋，清华大学副教授，在四维拓扑，辛几何，规范场理论等方面做出了多项深刻工作，解决了一系列重要问题：将等变同伦论与规范理论方法结合，发现了四维流形上首个稳定化后不消失的奇异微分现象，解决了该领域长达 60 年的公开问题；与人合作完全解决了著名拓扑学家 M.Furuta 与 J.Jones 提出的球面等变映射存在性猜想，从而在四维流形分类核心问题（八分之十一猜想上）取得了 20 年来最大的突破；开创性得将著名几何学家 C.Taubes 关于周期端四维流形的工作推广至 Seiberg-Witten 方程框架，并取得了四维流形正数量曲率的新障碍。相关论文发表在 J. Differential Geom., Geom. & Topol., J. Topology 等国际著名期刊上。