



北京理工大学

数学与统计学院学术报告

Counting closed geodesics via algebraic torsions

报告人: 张俊 中国科学技术大学

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摘要: In this talk, we will provide a topological condition on a closed manifold, relying on some non-trivial information about its fundamental group, so that any Finsler metric on it admits infinitely many geometrically distinct closed geodesics. This condition potentially covers new examples. Our approach is based on a quantitative perspective of the symplectic cohomology theory, where counting closed geodesics is replaced by counting closed Reeb orbits. Here, the quantitative perspective means that torsions from symplectic cohomology theory play essential roles. We will elaborate on the importance of these torsions from a powerful result called symplectic Smith inequality. This inequality controls the growth of the total number of the closed Reeb orbits in a fixed free homotopy class, especially when this free homotopy class iterates. We emphasize that, different from the classical approaches, our method does not use any index theory. If time permits, we will also outline a different proof that only relies on classical methods from calculus of variations. This talk is based on joint work with Egor Shelukhin.

个人简介: 张俊博士毕业于美国佐治亚大学，并在以色列特拉维夫大学和加拿大蒙特利尔大学—CRM研究所完成了博士后工作，于2022年加入中国科学技术大学—几何与物理研究中心，任助理教授一职。张俊博士的主要研究方向为辛几何，具体涉及哈密尔顿动力系统，切触几何以及微局部分析。目前，张俊博士已有十余篇文章发表在国际核心期刊，包括 *Geometry & Topology*, *Compositio Mathematica*, *Communications in Contemporary Mathematics* 等。另外，张俊博士还有两部前沿学术专著，分别由美国数学学会和 Springer 出版。

腾讯会议: 894 799 9208

几何讨论班

主办单位: 北京理工大学数学与统计学院
School of Mathematics and Statistics, Beijing Institute of Technology