

Fall 2024

Geometry and Topology Seminar

Title

拓扑、代数几何与算法的复杂度

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Date: October 25, 2024

Time: 10:30AM

Tencent Meeting: 847-645-031, Password: 202410

Abstract: 我们将讨论如何用拓扑的方法，来比较一系列古典代数几何问题的算法解的复杂度。我们将从初等的几何对象出发，譬如代数曲线和曲面，介绍 Smale 提出的算法拓扑复杂度的概念，然后用拓扑的工具来计算复杂度的下界，得出结论：这一类代数几何问题不存在简单的算法解。这份工作是报告人与万喆彦、古星的合作。

We use topological method to study the complexity of algorithms that find solutions to various enumerative problems in classical algebraic geometry. We will start with basic geometry objects such as algebraic curves and surfaces, discuss the notion of topological complexity defined by Smale, and then prove lower bounds for the topological complexity using topological method. We conclude that several enumerative problems in algebraic geometry do not have simple algorithmic solution. This work is joint with Zheyang Wan and Xing Gu.