合肥工業大學
HEFEI UNIVERSITY OF TECHNOLOGY

口合工大数论日

2026 年翡翠湖数论研讨会Ⅲ

会议手册

安徽合肥

2026 年 7 月 3 日–7 月 5 日

会议基本信息

会议主题：为相关领域的专家学者提供一个学习交流的平台，共同探讨数论及相关领域的最新进展，促进学术交流与科研合作。

邀请报告人：

郭　宁	哈尔滨工业大学
黄可平	哈尔滨工业大学
田乙胜	哈尔滨工业大学
赵和耳	哈尔滨工业大学
邹建迪	哈尔滨工业大学

主办单位：合肥工业大学数学学院

会务联系人：吴小胜：17755149685；张神星：13866688642；
陶正宇：18851090515

会议地点：合肥工业大学翡翠湖校区科教楼 B 座 1710

会议日程安排

7 月 3 日报到		
7 月 4 日，科教楼 B 座 1710		
09:30–11:05: 主持人： 梁永祺		
09:30–10:15	郭　宁	Purity for Flat Cohomology for Syntomic Algebras over Valuation Rings
10:20–11:05	黄可平	Algebraic Hyperbolicity of Complements of Three Divisors in Surfaces over Function Fields
11:10–14:30: 午餐时间		
14:30–16:05: 主持人： 胡勇		
14:30–15:15	田乙胜	An Introduction to Obstruction Theory over *p*-adic Function Fields
15:20–16:05	赵和耳	Serre − Tate Theory for Log Abelian Varieties
16:05–16:35	茶歇	
16:35 − 17:20 主持人： 赵立璐		
16:35–17:20	邹建迪	Ramanujan Complexes from Unitary Groups over Number Fields
17:30–19:00: 晚餐时间		
7 月 5 日 自由讨论		

题目与摘要

Purity for Flat Cohomology for Syntomic Algebras over Valuation Rings

郭　宁　哈尔滨工业大学

Abstract: After Auslander − Goldman, Grothendieck's purity conjecture for Brauer groups predicts that Azumaya algebras over punctured regular local schemes extend if the closed point has codimension at least 2. This conjecture was settled completely by tilting equivalence and its generalization for locally complete intersections was achieved by Česnavičius − Scholze, who exploited purity results for perfectoids. In this talk, we consider purity for syntomic algebras and smooth algebras over valuation rings, which are typically non-Noetherian but crucial in modern geometry. First, we define a nice dualizing object over valuation rings (after Gabber) and understand it as an orientation class of a root stack in terms of log geometry. This leads to a six-functor formalism over arcs. Then, to circumvent Gabber's quasi-excellent assumption, we employ the relative perversity of Hansen − Scholze to obtain Artin's vanishing and subsequently Lefschetz's hyperplane theorem to resolve the prime-to-p coefficient purity problem. Finally, we combine Čech descent and André's lemma to reduce to the perfectoid case, where the p-primary purity is treated via prismatic Dieudonné modules.

Algebraic Hyperbolicity of Complements of Three Divisors in Surfaces over Function Fields

黄可平　哈尔滨工业大学

Abstract: Applying an approximation result on surfaces in our earlier work, we prove the degeneracy of integral points for the complement of three divisors on many surfaces over function fields. This generalizes work of Corvaja − Zannier. Along the proof of these Diophantine results, we also show that certain open surfaces are of log general type. This is joint work with Aaron Levin and Zheng Xiao.

An Introduction to Obstruction Theory over *p*-adic Function Fields

田乙胜　哈尔滨工业大学

Abstract: In this talk, we first recall cohomological obstruction theory over fields of arithmetic type. Subsequently, we introduce classical results on the comparison of obstructions. Finally, we explain a potential candidate for the correct obstruction over *p*-adic function fields.

Serre − Tate Theory for Log Abelian Varieties

赵和耳　哈尔滨工业大学

Abstract: For abelian schemes, the Serre − Tate theorem says that the infinitesimal deformations of an abelian scheme are determined by the infinitesimal deformations of its p-divisible groups. In Drinfeld's proof of Serre − Tate theorem, Messing's theorem on the formal smoothness of p-divisible groups plays an important role. In this talk, we discuss the analogues of the two theorems for log abelian varieties and log p-divisible groups.

Ramanujan Complexes from Unitary Groups over Number Fields

邹建迪　哈尔滨工业大学

Abstract: Ramanujan graphs, as a typical class of the so-called expander graphs, are important in graph theory, number theory as well as computer science. Expander complexes and Ramanujan complexes, as their higher dimensional analogues, have gradually attracted interest in the past decades. In this talk, we give a new construction of Ramanujan complexes from unitary groups over number fields, based on the endoscopic classification of (non-quasisplit) unitary groups. Under the "golden" condition, our construction is explicit, meaning that we have an algorithm that is practically executable on a modern (or future) computer. This is joint work with Rahul Dalal and Alberto Minguez.