几何与数论研讨会

欢迎您莅临参加“几何与数论研讨会”。此次会议将由哈尔滨工业大学数学研究院主办，旨在促进几何与数论的学术交流与合作。我们诚挚地欢迎您的到来！

会议安排：

住宿地点：桔子酒店（哈尔滨工业大学火车站店）

报到时间：2026年8月22日

学术报告：2026年8月23日-24日

离会时间：2026年8月25日

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主办单位：哈尔滨工业大学数学研究院

报 告 日 程

8月23日（周日）

时间	报告
09:50-10:00	开幕式
10:00-11:00	报告人：Qiao He 题　目：Intertwining operator and functional equations of Whittaker functions
11:00-11:20	茶歇
11:20-12:20	报告人：Qi Guo 题　目：The Brézis-Coron Open Problem and Boundary Rigidity for Harmonic Maps
12:30-13:30	午餐
午休	
14:00-15:00	报告人：Qingchao Yu 题　目：A Combinatorial Description of the Irreducible Components of Local Models with Parahoric Levels
15:00-15:20	茶歇
15:20-16:20	报告人：Yupeng Wang 题　目：Convergence of Galois representations over de Rham period ring
17:30-19:30	晚宴

报 告 日 程

8月24日（周一）

时间	报告
10:00-11:00	报告人：Zicheng Qian 题　目：Restriction from G to g,N(T)
12:00-14:00	午宴

报告题目与摘要

Intertwining operator and functional equations of Whittaker functions

Qiao He

Abstract: Functional equation of Eisenstein series is a fundamental formula and has many applications. The abstract formulation involves intertwining operator, and it is of great interest to make it explicit. In this talk, we discuss an explicit functional equation of Siegel-Weil Eisenstein series/Whittaker functions associated to a quadratic/hermitian lattice whose localization is a vertex lattice. Instead of using the definition of the intertwining operator to do the calculation directly, we regard the intertwining operator as a degenerate Whittaker function, and make use of the relation between Whittaker function and local density to compute the formula inductively. Even for the self-dual lattice/unramified case, our method is new compared with the classical Gindikin-Karpovich method. As a result, we obtain an elegant functional equation for the corresponding local density polynomials too. This talk is based on a joint work with Chao Li, Yousheng Shi, Tonghai Yang and Baiqing Zhu.

Time: 8.23 (Sunday), 10:00 – 11:00
Venue: Gewu Building 315 Lecture Hall, Harbin Institute of Technology

The Br é zis–Coron Open Problem and Boundary Rigidity for Harmonic Maps

Qi Guo
Renmin University of China

Abstract: We study harmonic maps from the 2 dimensional unit disk B_1 into S^2 with boundary data given by a once-covered latitude circle. Brézis and Coron constructed two explicit solutions and asked whether there are other solutions. Our main result gives a negative answer: every weak harmonic map with this boundary trace must be one of the two Brézis-Coron maps. The proof uses a boundary rigidity argument based on the Hopf differential, the Pohozaev identity, and the sharp planar isoperimetric inequality. This completely resolves Brézis's Open Problem 3.1.

Time: 8.23 (Sunday), 11:20 – 12:20
Venue: Gewu Building 315 Lecture Hall, Harbin Institute of Technology

A Combinatorial Description of the Irreducible Components of Local Models with Parahoric Levels

Qingchao Yu

Abstract: Local models are flat projective schemes that encode the singularities of integral models of Shimura varieties and moduli of G-shtukas. Their geometric special fibers are generally unions of affine Schubert varieties indexed by the admissible set in the Iwahori--Weyl group. The set of irreducible components is rather complicated. In this talk, I will give a uniform combinatorial description of the irreducible components of these special fibers at an arbitrary parahoric level. This talk is based on my joint work with Xuhua He.

Time: 8.23 (Sunday), 14:00 – 15:00
Venue: Gewu Building 315 Lecture Hall, Harbin Institute of Technology

Convergence of Galois representations over de Rham period ring

Yupeng Wang

Abstract: A Galois representation over Fontaine's de Rham period ring is called convergent if it extends to a Galois-equivariant vector bundle on a neighborhood of the point at infinity of the Fargues-Fontaine curve, with compatible Galois cohomology. We will give a sufficient condition for convergence of such representations using the theory of p-adic differential equations.

Time: 8.23 (Sunday), 15:20 – 16:20
Venue: Gewu Building 315 Lecture Hall, Harbin Institute of Technology

Restriction from G to g,N(T)

Zicheng Qian

Abstract: The development of higher L invariants for GL(n) (generalizing results by Breuil, Ding and Schraen) depends heavily on the locally analytic cohomology of the locally analytic Steinberg representation. In this talk, we explain how the locally analytic cohomology for certain locally analytic representations can be effectively studied by restriction from D(G) to a subalgebra D(g,N(T)). On one hand, we see that such restriction allows one to define "branch" upon choosing a uniformizer. On the other hand, we explain how this restriction map is natural when applied to representations constructed from the Drinfeld space.

Time: 8.24 (Monday), 10:00 – 11:00
Venue: Gewu Building 315 Lecture Hall, Harbin Institute of Technology