

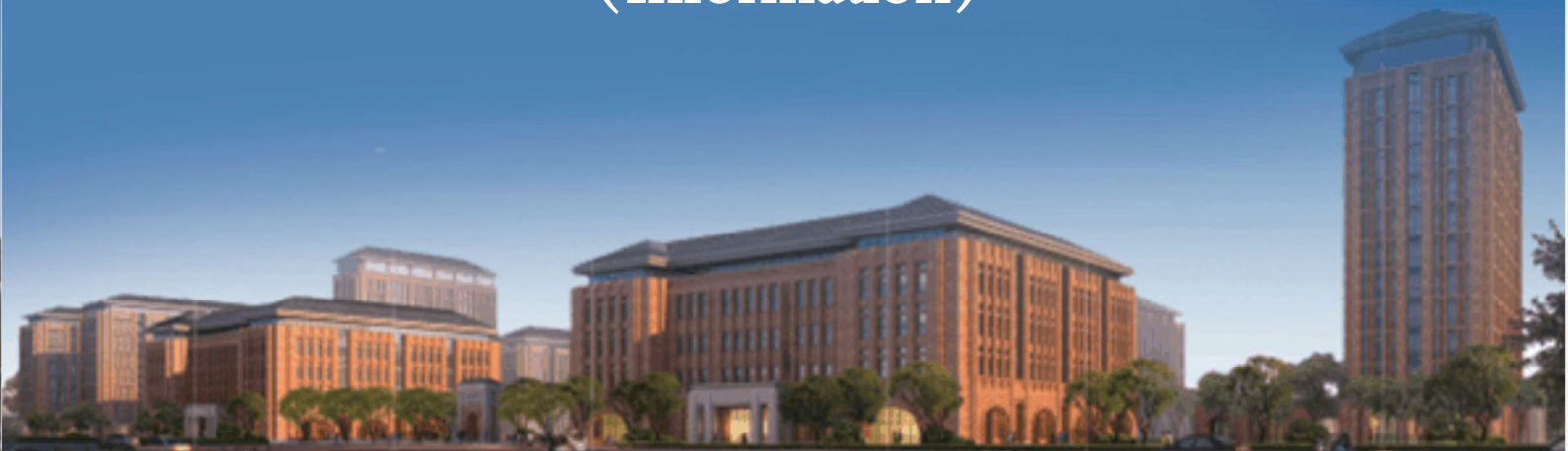


浙江大學 数学科学学院
School of Mathematical Sciences
Zhejiang University

Symposium on Number Theory and Representation Theory

会议手册

(Information)



Symposium on Number Theory and Representation Theory, V

Nov. 5 – Nov. 7, 2021 Zhejiang University
Hangzhou, China

Invited Speakers:

| | |
|--------------|--|
| Yiwen Ding | Peking University |
| Yongqi Feng | Shantou University |
| Dongming She | Morningside Center of Mathematics, CAS |
| Feng Su | Xi'an Jiaotong-Liverpool University |
| Shanwen Wang | Renmin University of China |
| Bingyong Xie | East China Normal University |
| Wei Xiong | Hunan University |
| Bin Xu | Sichuan University |
| Daxin Xu | Morningside Center of Mathematics, CAS |
| Hongbo Yin | Shandong University |
| Shilin Yu | Xiamen University |
| Yigeng Zhao | Westlake University |

Organizers:

刘东文 (malieu@zju.edu.cn)、齐治 (zhi.qi@zju.edu.cn)、高帆 (gaofan@zju.edu.cn)

Time:

9:00-11:40am, 2:00-5:40pm, Nov. 5-Nov. 7

Venue:

Tencent Meetings ID: 847 6976 9086

Password: 211105



School of Mathematical Sciences
Zhejiang University, Hangzhou, China

Meeting on 5-7 Nov 2021

(Start From the afternoon of Nov 4, the participants can check in at the reservation hotel)

| | 2021/11/5 | 2021/11/6 | 2021/11/7 |
|-------------|----------------------|---------------------|---------------------|
| 9:00-9:20 | Sign in | | |
| 9:20-10:20 | Hongbo Yin | Daxin Xu | Bingyong Xie |
| 10:20-10:40 | Tea Break | | |
| 10:40-11:40 | Feng Su | Bin Xu | Shanwen Wang |
| 11:40-12:00 | Lunch and noon break | | |
| 12:00-13:00 | | | |
| 13:00-14:00 | | | |
| 14:00-15:00 | Wei Xiong | Dongming She | |
| 15:00-15:20 | Tea Break | Tea Break | |
| 15:20-16:20 | Yigeng Zhao | Yiwen Ding | |
| 16:20-16:40 | Tea Break | Tea Break | |
| 16:40-17:40 | Shilin Yu | Yongqi Feng | |
| 18:00 | Dinner | | |

Title and Abstract

Time: 9:00-11:40am, 2:00-5:40pm, Nov 5- Nov 7

Venue: Tencent Meetings ID: 847 6976 9086. Password: 211105

Speaker: Bingyong Xie (谢兵永)

Affiliation: East China Normal University

Title: Iwasawa Theory for anticyclotomic extensions

Abstract: In this talk, we will introduce some background on the topics in Iwasawa Theory, and also include my recent works in this direction. One is on Iwasawa main conjecture, removing the Ihara Lemma condition in Longo's and Wang' s works. The other is on exceptional zero conjecture. We obtain an exceptional zero result for multiple variable p-adic L functions.

Speaker: Hongbo Yin (尹洪波)

Affiliation: Shandong University

Title: The Cube Sum Problem

Abstract: One old question in number theory is to determine whether an integer can be written as the sum of two nonzero rational cubes. The Sylvester conjecture predicts that for every prime p congruent to $4,7,8$, the answer is positive. This conjecture is quite open and only has some partial results. In this talk, I will introduce the background of cube sum problem and some recent progress. I will also talk about my recent work on the 8 case of Sylvester conjecture where the theory of singular moduli plays a role.

Speaker: Feng Su (苏峰)

Affiliation: Xi'an Jiaotong-liverpool University

Title: Nonvanishing of geodesic periods on compact hyperbolic manifolds

Abstract: We show that there are infinitely many nonvanishing geodesic periods on compact hyperbolic manifolds. A lower bound on the amount of nonvanishing geodesic periods over a spectral interval is proved. Applying the same argument to pairs of geodesic periods, we prove the analogue results for their simultaneous nonvanishing.

Speaker: Yigeng Zhao (赵以庚)

Affiliation: Westlake University

Title: Twist formulas for epsilon factors

Abstract: Epsilon factors are the constant terms in the functional equations of L-functions, which contain the ramification information. In this talk, we will first review the classical epsilon factors in number theory, then study some twist formulas of their generalizations in the theory of l-adic sheaves. This is joint work with Enlin Yang.

Speaker: Shilin Yu (余世霖)

Affiliation: Xiamen University

Title: Deformation quantization of coadjoint orbits

Abstract: The coadjoint orbit method of Kirillov and Kostant suggests that irreducible unitary representations of a Lie group can be constructed as geometric quantization of coadjoint orbits of the group. It encounters difficulties in the case of noncompact reductive Lie groups. Vogan reformulated the orbit method in terms of quantization of equivariant vector bundles on certain algebraic varieties closely related to coadjoint orbits. I will propose a new way to quantize orbits using deformation quantization of symplectic varieties and their Lagrangian subvarieties and examine Vogan's conjecture. This is based on joint work with Conan Leung and ongoing work with Ivan Losev.

Speaker: Yiwen Ding (丁一文)

Affiliation: Peking University

Title: Bernstein eigenvarieties

Abstract: We construct and study certain rigid spaces, that we call Bernstein eigenvarieties, parametrizing possibly-non finite slope p-adic automorphic representations. We explain how these spaces are related to generalized Grothendieck-Springer resolutions. We also give some applications of the theory in p-adic Langlands program. This is a joint work with Christophe Breuil.

Speaker: Daxin Xu (许大昕)

Affiliation: Morningside Center of Mathematics of Chinese Academy of Sciences

Title: Hypergeometric sheaves for classical groups

Abstract: Recently, Jakob and Yun introduced a new class of p -adic representations called euphotic representations, generalizing simple supercuspidal representations and epipelagic representations. In this talk, we will talk about hypergeometric local systems for classical groups constructed by certain euphotic representations. It is based on the joint work with Masoud Kamgarpour and Lingfei Yi.

Speaker: Wei Xiong (熊玮)

Affiliation: Hunan University

Title: Tunnell's theorem

Abstract: Tunnell in 1983 discovered an explicit relation between L -values of quadratic twists of congruent elliptic curve and Fourier coefficients of certain modular forms, by using Waldspurger's theorem on L -series values. In this talk, we will review Tunnell's theorem and give a generalization (joint work with Wei He and Ye Tian).

Speaker: Yongqi Feng (冯泳祺)

Affiliation: Shanghai Jiao Tong University

Title: On the local Langlands correspondence for supercuspidal unipotent representations

Abstract: Let k be a non-archimedean local field, and let G be a connected reductive k -group. Hiraga, Ichino and Ikeda (HII) conjectured that the formal degree of a discrete series representation of $G(k)$ can be computed via the associated discrete (i.e. elliptic) local Langlands parameter. The supercuspidal unipotent representations form a convenient class to test this conjecture, since the classification and formal degrees are known when G is simple and adjoint. We shall discuss, for supercuspidal unipotent representations of classical groups, the proof of the HII formal degree conjecture. This leads to a local Langlands correspondence for such representations, which agrees with the parametrization obtained by Morris and Lusztig when G is simple and adjoint. (Joint-work with Eric Opdam and Maarten Solleveld.)

Speaker: Shanwen Wang (王善文)

Affiliation: Renmin University of China

Title: Factorization of Beilinson-Kato's element

Abstract: In Kato's seminal work on his Euler system, he relates his Euler system of modular form to special value of L functions via the Rankin Selberg method. We will explain an algebraic version of this fact via the factorization of Beilinson-Kato's element. This talk is based on the joint work with Pierre Colmez.

Speaker: Bin Xu (许宾)

Affiliation: Sichuan University

Title: Top Fourier coefficients of certain automorphic representations of $GL(n)$

Abstract: Fourier coefficients of automorphic forms play an important role in the study of automorphic representations. In this talk, we will recall some basics on Fourier coefficients attached to nilpotent orbits, and introduce some results on the top Fourier coefficients of automorphic representations of $GL(n)$.

Speaker: Dongming She (佘东明)

Affiliation: Morningside Center of Mathematics of Chinese Academy of Sciences

Title: Local Langlands correspondence and stability of local coefficients

Abstract: A main problem in the local Langlands correspondence is the equality of the local arithmetic and analytic L- and epsilon-factors. We will briefly introduce the local Langlands correspondence, Langlands-Shahidi method, and sketch a proof of the equality of the local factors attached to the twisted symmetric square and exterior square representations of $GL(N)$, by applying Langlands-Shahidi method to $GSpin$ groups. The proof uses a global argument to reduce it to the stability of Shahidi local coefficients. We will also discuss the strategy towards the stability of local coefficients using an asymptotic analysis of certain partial Bessel functions.

