

Schedule

May 17

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| 09:00 – 09:40 | Opening Ceremony |
| 09:40 – 10:10 | Tea Break |
| 10:10 – 10:50 | Speaker: Jing Yu, National Taiwan University |
| 11:00 – 11:40 | Speaker: Wei Xiong, Hunan University |
| 12:00 | Lunch |
| 14:00 – 14:40 | Speaker: Yenliang Kuan, National Taiwan University |
| 14:50 – 15:30 | Speaker: Jiangxue Fang, Capital Normal University |
| 15:30 – 16:00 | Tea Break |
| 16:00 – 16:40 | Speaker: Lili Zhao, Hefei University of Technology |
| 16:50 – 17:30 | Speaker: Min Tang, Anhui Normal University |
| 18:00 | Dinner |

May 18

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| 09:00 – 09:40 | Speaker: Yichao Tian, Chinese Academy of Sciences |
| 09:40 – 10:10 | Tea Break |
| 10:10 – 10:50 | Speaker: Miaofen Chen, East China Normal University |
| 11:00 – 11:40 | Speaker: Ping Xi, Xi'an Jiaotong University |
| 12:00 | Lunch |

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| 14:00 – 14:40 | Speaker: Chuangxun Cheng, Nanjing University |
| 14:50 – 15:30 | Speaker: Hao Pan, Nanjing University |
| 15:30 – 16:00 | Tea Break |
| 16:00 – 16:40 | Speaker: Haiwei Sun, Shandong University , Weihai |
| 16:50 – 17:30 | Speaker: Weidong Gao, Nankai University |
| 18:00 | Dinner |

On Multiple Zeta Values in Positive Characteristic

Jing Yu

National Taiwan University

I will give a survey on the recent progress of multiple zeta values (after D. Thakur) in positive characteristic. In the direction of transcendence theory, we are able to go far beyond the classical characteristic zero theory, proving not only the transcendence of each multiple zeta value MZV, but that in fact linear independence of MZV's with the same weight over the rationals implies algebraic independence. In particular what we called Euler dichotomy holds for these MZV's. Call given MZV Eulerian if it is a rational scalar multiple of the fundamental Carlitz period to the power of the weight. Also call a given MZV zeta-like if it is rational scalar multiple of the single Carlitz zeta value taking at the weight. Chang-Papanikolas-Yu 2014 has established effective criterion to determine Eulerian or zeta-like property in terms of special integral points on the motivic t-module structures relating to the given MZV's. With the help of computers, we now have conjectured rules to specify all the Eulerian/zeta-like MZV's in positive characteristic.

Fourier Coefficients of Eisenstein Series on the exceptional group G_2

Wei Xiong

Hunan University

Fourier coefficients of modular forms are interesting objects of study. In this talk, I will explain how to compute the Fourier coefficients of some Eisenstein series on the exceptional group G_2 , via exceptional theta correspondence for $G_2 \times PGL_3$. The resulting Fourier coefficient is the product of several Dedekind zeta functions and a finite number of local factors. This generalizes a result of Jiang and Rallis.

The density of abelian extensions of prime degree

Yenliang Kuan

National Taiwan University

In this talk, we shall give a precise asymptotic formula which counts the number of abelian extensions of prime degrees over rational function fields. Specifically, let ℓ be a rational prime and K a rational function field $\mathbb{F}_q(t)$ with $\ell \nmid q$. Let $\text{Disc}_f(F/K)$ denote the finite discriminant of F over K . Denote the number of abelian l -extensions F/K with $\deg(\text{Disc}_f(F/K)) = (\ell - 1)\alpha n$ by $a_\ell(n)$, where $\alpha = \alpha(q, \ell)$ is the order of q in the multiplicative group $(\mathbb{Z}/\ell\mathbb{Z})^\times$. We give a precise asymptotic formula for $a_\ell(n)$.

Equivariant special L-values of abelian t-modules

Jiangxue Fang

Capital Normal University

In this talk, we prove a formula of the equivariant infinity-adic special values of the Goss L-function of an abelian t-modules. In particular, we calculate the special values of Artin L-function for any Galois representation of function fields.

Survey on recent progress in quadratic Waring-Goldbach problems

Lilu Zhao

Hefei University of Technology

The topic on the quadratic Waring-Goldbach problem concerns various quadratic Diophantine equations with multiplicative restrictions. A survey article by Liu and Zhan in 2007 includes resourceful results on the research in this topic. In this talk, we report the recent progress on quadratic Waring-Goldbach problems. In particular, we shall focus on the new development since 2007.

On the Erdős-Turán conjecture

Min Tang

Anhui Normal University

Let \mathbb{N} be the set of all nonnegative integers and $k \geq 2$ be a fixed integer. For a set $A \subseteq \mathbb{N}$, let $r_k(A, n)$ denote the number of solutions of $a_1 + \cdots + a_k = n$ with $a_1, \dots, a_k \in A$. In 1941, P. Erdős and P. Turán [J. London Math. Soc. 16 (1941), 212-215; MR0006197 (3,270e)] conjectured that if $r_2(A, n) \geq 1$ for large enough n , then $r_2(A, n)$ can not be bounded. In this report, I will introduce some related work on this conjecture. Moreover, I will report the recent work of myself [Min Tang, On the Erdős-Turán conjecture, J. Number Theory 150:5(2015), 74-80.]

Canonical subgroups for π -divisible \mathcal{O} -modules

Yichao Tian

Chinese Academy of Sciences

The classical theory of overconvergent p -adic modular forms requires the base Shimura variety to have a non-empty ordinary locus. For many Shimura varieties (for instance those of Harris-Taylor), this condition is not satisfied. In this talk, I will explain how to generalize the classical theory of canonical subgroups to π -divisible \mathcal{O} -modules. This is a work in progress with Shen Xu.

A stratification of the moduli spaces of p -divisible groups

Miaofen Chen

East China Normal University

We propose a new stratification of the reduced subschemes of Rapoport-Zink spaces (i.e. moduli spaces of p -divisible groups) and of affine Deligne-Lusztig varieties for the unramified groups which generalizes stratifications for special cases such as the

Bruhat-Tits stratification of Vollaard and Wedhorn, and the semi-module stratification of de Jong and Oort. (Joint work with Eva Viehmann)

Sato-Tate distributions of Kloosterman sums and several variants

Ping Xi

Xi'an Jiaotong University

Values of Kloosterman sums are expected to be random in many aspects, which were explicitly formulated by Nicholas Katz, known as the Sato-Tate Conjecture/Theorem for Kloosterman sums. We will discuss recent progresses on Sato-Tate distributions of Kloosterman sums over sparse sequences, as well as some variants in the sense of arithmetic and statistics.

Deformations of Galois representations

Chuangxun Cheng

Nanjing University

The theory of deformations of Galois representations is an important and powerful number-theoretical tool. In this talk, I will explain some basic properties of deformations of Galois representations. I will emphasize on the flat deformation functor and explain how one could explicitly compute the universal flat deformation rings by using Breuil modules.

素数的小间隔问题简介

Hao Pan

Nanjing University

我们将介绍一下近期数论中的重大突破之一Zhang-Maynard-Tao定理及其最新的一些发展。

Improved subconvexity bounds for $GL(2) \times GL(3)$ and $GL(3)$ L -functions by weighted stationary phase

Haiwei Sun

Shandong University , Weihai

Let f be a fixed self-contragradient Hecke-Maass form for $SL(3, \mathbb{Z})$, and u an even Hecke-Maass form for $SL(2, \mathbb{Z})$ with Laplace eigenvalue $1/4+k^2$, $k \geq 0$. Recently Mark McKee, Haiwei Sun and Yangbo Ye proved a subconvexity bound $O((1+k)^{4/3+\varepsilon})$ in the eigenvalue aspect for the central value at $s = 1/2$ of the Rankin-Selberg L -function $L(s, f \times u)$. Meanwhile, a subconvexity bound $O((1+|t|)^{2/3+\varepsilon})$ in the t aspect was proved for $L(1/2 + it, f)$. These bounds improved corresponding subconvexity bounds proved by Xiaoqing Li (Annals of Mathematics, 2011). The main techniques in the proofs, other than those used by Li, are n th-order asymptotic expansions of exponential integrals in the cases of the explicit first derivative test, the weighted first derivative test, and the weighted stationary phase integral, for arbitrary $n \geq 1$. These asymptotic expansions sharpened the classical results for $n = 1$ by Huxley.

On the EGZ-constant and short zero-sum sequences

Weidong Gao

Nankai University

Let G be an additive finite abelian group with exponent $\exp(G)$. Let $\mathfrak{s}(G)$ be the smallest integer t such that every sequence S over G of length $|S| \geq t$ contains a zero-sum subsequence of length $\exp(G)$. Let $\eta(G)$ be the smallest integer t such that every sequence S over G of length $|S| \geq t$ contains a zero-sum subsequence T over G of length $|T| \in [1, \exp(G)]$. We present some results and open problems concerning these two invariants of G .
