# Conference on Number Theory

**November 4, 2014**  
Room 210, Run Run Shaw Building, HKU

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<td><strong>I. Rezvyakova</strong>, Russia</td>
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<td>The University of Hong Kong, Hong Kong</td>
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Organizers: B. Kane, Y.-K. Lau & K.-M. Tsang

All are welcome
Abstracts

B. Kane, The University of Hong Kong, Hong Kong

*Cycle integrals of meromorphic modular forms and CM-values of automorphic forms*

We consider inner products on modular forms and regularizations when their naive definitions diverge. In particular, we define a new inner product for meromorphic modular forms. Computing an interesting special case explicitly, we obtain a CM-trace of another interesting modular object. This is based on joint work with Kathrin Bringmann.

Maxim Korolev, Steklov Mathematical Institute, Russia

*On incomplete Gaussian sums*

In this talk, we will discuss a connection between upper bounds for the absolute value of incomplete Gaussian sum of the type

\[ S(q, a; N) = \sum_{\nu=1}^{N} \exp \left( 2\pi i \frac{a\nu^2}{q} \right), \quad (a, q) = 1, \quad 1 \leq N \leq q \]

and the properties of continued fraction for \( \frac{a}{q} \). In particular, we will speak about numerical value of the constant \( \kappa \) in the inequality

\[ |S(q, a; N)| \leq \kappa \sqrt{q}. \]

I. Rezvyakova, Steklov Mathematical Institute, Russia

*An additive problem with the twists of Dirichlet characters*

We consider an additive problem

\[ \sum_{\substack{an - bm = l, \\ n \leq N}} \tau_{v,w}(n)\tau_{v,w}(m) \]

with the following coefficients

\[ \tau_{v,w}(n) = \sum_{d|n} \chi_v(d)\chi_w(n/d) \]

and obtain an asymptotic formula using the estimates on Kloosterman sums.

I.D. Shkredov, Steklov Mathematical Institute, Russia

*Subsets of \( \mathbb{F}_p \) with small Wiener norm*

We obtain new lower bounds for Wiener norm of a set \( A \) (\( l_1 \)-norm of Fourier transform of its characteristic function) from the prime field \( \mathbb{F}_p \). Thus we get some progress in so-called Littlewood conjecture in \( \mathbb{F}_p \) as well as in a quantitative version of Beurling-Helson theorem.