



CONFERENCE ON NUMBER THEORY

April 5, 2013

Room 210, Run Run Shaw Building, HKU

2:25 – 2:30 Welcoming speech by Prof. Ngaiming Mok (Director of IMR, HKU)

2:30 – 3:20 **Professor Kalyan Chakraborty**, Harish-Chandra Research Institute, India

Arithmetical Fourier series and the modular relation

Abstract: We consider zeta-functions satisfying the functional equation with multiple gamma factors and talk about an intermediate modular relation. This gives rise to many arithmetical Fourier series as a consequence of the functional equation. Here we consider the Fourier series for the periodic Bernoulli polynomials and Kummer's Fourier series for the loggamma function. This study may provide foundation for a possible theory of arithmetical Fourier series based on the functional equation satisfied by various zeta functions.

Coffee Break

4:00 – 4:50 **Professor Heng Huat Chan**, National University of Singapore

Class invariants

Abstract: Let K be an imaginary quadratic field. It is known that there is a maximal unramified abelian extension H of K such that the Galois group $\text{Gal}(H|K)$ is isomorphic to the class group of K . A generator of H is called a class invariant. It is well known that one can use special values of j -invariant function to generate H . In this talk, we will study other functions similar to the j -invariant.

5:00 – 5:50 **Professor Yifan Yang**, National Chiao Tung University, Taiwan

Explicit methods for Shimura curves

Abstract: Shimura curves are generalizations of classical modular curves. Because of the lack of cusps on Shimura curves, there have been very few explicit methods for Shimura curves. In this talk, we will realize modular forms on Shimura curves as Borcherds forms. Together with Schofer's formula for singular moduli, this enables us to do computation on Shimura curves. Applications include equations for Shimura curves, heights of CM-points on Shimura curves, and explicit families of genus 2 curves with quaternionic multiplication.

Organizers: Yuk-Kam Lau, Kai-Man Tsang

All are welcome