

MATH-IMS Joint Pure Mathematics Colloquium Series The Chinese University of Hong Kong

This Colloquium Series in Pure Mathematics is organized by the Department of Mathematics and the Institute of Mathematical Sciences (IMS) at The Chinese University of Hong Kong. The series focuses on all areas of pure mathematics together with theoretical developments and applications.

Date: December 9, 2021 (Thursday)

Time: **4:00-5:00PM** (Hong Kong Time)

Zoom Link: <https://cuhk.zoom.us/j/98846779826>

Congruent Number Problem and L-functions

*Speaker: Professor Ye Tian
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Abstract: Recall a positive integer is called a congruent number if it is the area of a right triangle with rational side lengths. For example, 5, 6, 7 are congruent number (Fibonacci) and 1, 2, 3 are not (Fermat). The congruent number problem (CNP for short) is to determine whether a given positive integer is a congruent number or not. The L-function of elliptic curve is an important tool to study CNP. In this talk, we introduce some recent progress.

Bio: Prof. Tian received his B.S. and M.Sc. degrees in mathematics at Sichuan University, and his Ph.D. in 2003 at Columbia University, under the supervision of Prof. Shouwu Zhang. After that, he was a member of the Institute for Advanced Study in Princeton and a postdoc at McGill University. Since 2006, Prof. Tian joined the Morningside Center of Mathematics at Chinese Academy of Sciences, where he is currently a Professor of Mathematics. Prof. Tian's research interests include the arithmetic of elliptic curves, Iwasawa theory, Birch and Swinnerton-Dyer Conjecture, Goldfeld Conjecture etc. In particular, he is known for his work on congruent number problem and CM p-converse theorem. In recognition of his fundamental contributions in these areas, Prof. Tian has been awarded the Morningside Silver Medal of Mathematics in 2007 and the Gold Medal in 2013. He was also the recipient of the ICTP-IMU Ramanujan Prize in 2013 and an invited speaker at the International Congress of Mathematicians in 2022.