Frontiers of Mathematics Lecture

Trigonometric Integrals and the Riemann Zeta Function

Date : September 3, 2018 (Monday)
Time : 5:30 – 6:30 pm
(Tea Reception starts at 5:00 pm)
Venue : Lecture Theatre A, G/F,
Chow Yei Ching Building,
The University of Hong Kong

Professor Yitang Zhang
University of California Santa Barbara, USA

Abstract

We introduce a kind of entire functions represented by integrals involving trigonometric functions, and their relationship to the Riemann zeta function. In particular we describe the recent progress due to Rodgers, Tao and others in this field. This talk is also open to the teachers and students whose majors are not number theory.

Biography

A pair of twin primes is a pair of prime numbers with a gap of two, such as (11, 13) and (17, 19). A well-known conjecture dating back to the mid-19th century asserts that there are an infinity of such pairs of twin primes. While the conjecture has eluded countless attempts at its resolution, in an article published in the *Annals of Mathematics* in 2013, Yitang Zhang shocked the mathematical community with his proof that there is an infinity of pairs of primes (p, q) with a fixed gap N less than 70 million. This breakthrough has led to eye-catching international collaborative projects aiming at reducing N to small positive integers.

Professor Yitang Zhang obtained his Ph.D. from Purdue University in 1991, and he is currently Professor at University of California Santa Barbara. Professor Zhang has been bestowed numerous awards for his stunning achievements in Number Theory. He was awarded the 2013 Morningside Special Achievement Award in Mathematics, the 2013 Ostrowski Prize, the 2014 Frank Nelson Cole Prize in Number Theory, the 2014 Rolf Schock Prize in Mathematics and the 2014 MacArthur Award. In 2016 he was awarded the Qiushi Prize (求是獎) for his distinguished achievements in the Sciences. Professor Zhang was elected as a Fellow of Academia Sinica in 2014 and he was an Invited Speaker at the International Congress of Mathematicians in the same year.