

國立中央大學數學系

專題演講

主 講 人：翁鵬絮教授（國立中山大學應用數學系）

演講題目：The eighth moment of the Riemann zeta function

演講茶會：2023年03月30日(星期四) 3:30 p.m. ~ 4:00 p.m.

茶會地點：中央大學鴻經館M306

演講時間：2023年03月30日(星期四) 4:00 p.m. ~ 5:00 p.m.

演講地點：中央大學鴻經館M107

Abstract：

The study of the value distribution of the Riemann zeta function $\zeta(s)$ is central to analytic number theory, and the moment estimate is one of the important topics. The second and fourth moments $\zeta(1/2+it)$ were established asymptotically by Hardy-Littlewood (1918) and Ingham (1926), respectively, and there has been folklore that sixth and higher moments are beyond current techniques. Nonetheless, a few years ago, Ng proved an asymptotic formula for the sixth moment under a conjecture for ternary additive divisor sums.

In this talk, I will review some background knowledge and then explain how the Riemann hypothesis and a conjecture for quaternary additive divisor sums imply the conjectural asymptotic for the eighth moment of the Riemann zeta function. This is joint work with Nathan Ng and Quanli Shen, and it builds on the above-mentioned work of Ng. A key new idea is to use sharp bounds for shifted moments of the zeta function on the critical line.

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