

MATHEMATICAL SCIENCES INSTITUTE PRESENTS:



2009 CLAY-MAHLER LECTURE

STRUCTURE AND RANDOMNESS IN THE PRIME NUMBERS

Professor Terence Tao
University of California, Los Angeles



Tuesday 22 September, 5.30-6.30pm

Lecture Theatre 1, Manning Clark Centre, Building 26a, Union Court, ANU
This event is free and open to the public. Refreshments provided after the lecture.

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"God may not play dice with the universe, but something strange is going on with the prime numbers" - Paul Erdos

The prime numbers are a fascinating blend of both structure and randomness. It is widely believed that beyond the 'obvious' structures in the primes, they otherwise behave as if they were distributed randomly; this 'pseudorandomness' then underlies our belief in many unsolved conjectures about the primes, from the twin prime conjecture to the Riemann hypothesis. This pseudorandomness has been frustratingly elusive to actually prove rigorously, but recently there has been progress to establish new results about the primes, such as that they contain arbitrarily long arithmetic progressions. Some of these developments will be discussed in this lecture.

Terence Tao has been a professor of mathematics at UCLA since 1999, having completed his PhD under Elias Stein at Princeton in 1996. His areas of research include harmonic analysis, PDE, combinatorics, and number theory. He has received a number of awards, including the Salem Prize in 2000, the Bochner Prize in 2002, the Fields Medal and SASTRA Ramanujan Prize in 2006, the MacArthur Fellowship and Ostrowski Prize in 2007, and the Waterman Award in 2008. Tao also holds the James and Carol Collins chair in mathematics at UCLA, and is a Fellow of the Royal Society, the Australian Academy of Sciences, and the National Academy of Sciences.

Professor Tao is the 2009 Clay-Mahler lecturer. The Mahler lectures are a biennial activity organised by the Australian Mathematical Society. The 2009 Clay-Mahler lectures are funded by the Clay Mathematical Institute, the Australian Mathematical Society and the Australian Mathematical Sciences Institute.



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