

Terence Tao was born in Adelaide in 1975. He completed his undergraduate studies at Flinders University, stayed on to do an MSc under the supervision of Garth Gaudry, and at age 20 completed his PhD under the supervision of Elias Stein at Princeton, supported by a Fulbright Association Postgraduate Award, and a Sloan Foundation Postgraduate Fellowship.

On completion of his PhD, Terry moved to UCLA in 1996, and is now a full professor there. He lives in Los Angeles, as an Australian citizen.

Terry lists his current primary research interests as

- Oscillatory integrals and Kakeya maximal functions
- Nonlinear dispersive equations
- Multilinear operators (such as the bilinear Hilbert Transform)
- Representation and symplectic theory of $U(n)$, in particular honeycombs
- Inverse scattering, nonlinear Fourier Transforms, and integrable systems for rough data
- Arithmetic combinatorics and number theory

and his secondary interests as

- Geometric PDEs (such as Yang-Mills)
- General relativity
- General harmonic analysis

He has made significant contributions to most of the areas on this list. Prominent international mathematicians asked to comment on his research, invariably pointed to the great originality characterising his work, to his ability to make major breakthroughs that define important new directions for others to follow, and to the remarkable breadth and depth of his contributions.

In harmonic analysis, he has made important progress with colleagues on the Kakeya conjecture, the Bochner-Riesz conjecture, and the so-called Restriction Problem, using his idea to attack bilinear and multilinear versions of these problems systematically.

In his work on nonlinear partial differential equations, highlights include new methods for proving well-posedness and nonlinear scattering for the nonlinear Schrodinger equation and the KdV equation, and especially the proof of global existence for the wave map equation in two dimensions.

In representation theory, Tao and colleagues have solved a circle of old problems, including Horn's Conjecture concerning the possible eigenvalues of the sum of two hermitian matrices whose eigenvalues are known, and the Saturation Conjecture, concerning the structure of the tensor products of irreducible representations of the group $U(n)$. To tackle these problems, they introduced the notion and machinery of the class of combinatorial objects called honeycombs.

In number theory, Tao and Ben Green have solved a famous long-standing problem by showing that there are arithmetic sequences of prime numbers of arbitrary length.

During the past fifteen years, Terry Tao has been back in Australia for several periods, as a Visiting Professor at UNSW and then as an Honorary Professor at ANU, in the interval 2000-2003. Work in those periods in Australia led to many important results that on their own constitute a major contribution to the advancement of mathematics. In particular, his remarkable work with Green on the prime numbers was largely developed during one of these periods in Australia, as was his important work on the wave map equation.

Terry's awards and honours include a Gold Medal at the Mathematics Olympiad in 1988, a Sloan Foundation Research Fellowship, a Packard Foundation Fellowship, a Clay Institute Research Award, the Salem Prize in 2000, the Bocher Memorial Prize of the American Mathematical Society in 2002, and the Conant Award of the American Mathematical Society in 2004.

It is a great pleasure for the Australian Mathematical Society to add its 2005 Medal to this distinguished list.