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UNH Mathematician Zhang Receives Cole, Ostrowski Prizes

Tom Zhang, lecturer in mathematics at the University of New Hampshire Credit: Lisa Nugent, UNH Photographic Services

DURHAM, N.H. – Yitang "Tom" Zhang, a lecturer in mathematics at the University of New Hampshire, will receive the 2014 Frank Nelson Cole Prize in Number Theory from the American Mathematical Society (AMS) and the 2013 Ostrowski Prize.

Presented every three years, the Cole Prize recognizes an outstanding research paper in number theory that has appeared in the preceding six years. The prize will be awarded on Thursday, Jan. 16, 2014, at the AMS's Joint Mathematics Meetings in Baltimore. Zhang is honored for his paper "Bounded Gaps between Primes" (Annals of Mathematics, volume 179, no. 3 (2014)). Also receiving the 2014 Cole Prize, for work related to but separate from the work of Zhang, are Daniel Goldston, Janos Pintz, and Cem Y. Yildirim.

Zhang is also the 2013 recipient of the Ostrowski Prize, awarded every other year by the Oswtrowski Foundation in Switzerland for outstanding achievements in pure mathematics.

Zhang's proof tackles the Twin Prime Conjecture, one of the oldest problems in number theory. The conjecture says that there are infinite number of prime numbers (numbers divisible only by 1 and themselves) that are only two numbers apart, like 3 and 5 or 17 and 19. Zhang's work, which has been described as proving a weak version of the twin prime conjecture, demonstrated that the number of prime pairs that are less than 70 million units apart is infinite.

While the Twin Prime Conjecture has motivated a great deal of research in number theory, an actual proof of the conjecture has remained out of reach. Zhang's work builds on a 2005 breakthrough 2005 by Goldston, Pintz, and Yildirim, who showed that there will always be pairs of primes that are much closer together than average spacing predicts. They developed a "sieve" to filter out pairs of primes that are closer together than average.

"The Cole Prize and Ostrowski Prize have in the past marked some of the greatest accomplishments in number theory and pure mathematics, and now they do so once again," said Edward Hinson, chair of UNH's department of mathematics and statistics and an associate professor of mathematics. "The Twin Prime Conjecture is among the oldest unanswered questions in all mathematics. Our department is excited and proud that our colleague Tom Zhang has produced such a tremendous advance toward its solution, and we congratulate him wholeheartedly on these well-earned awards."

"The prize means my work is greatly appreciated by the mathematical society," Zhang said of the Cole Prize. "It strongly encourages me to continue my work."

Founded in 1888 to further mathematical research and scholarship, today the more than 30,000 member [American Mathematical Society](#) fulfills its mission through programs and services that promote mathematical research and its uses, strengthen mathematical education, and foster awareness and appreciation of mathematics and its connections to other disciplines and to everyday life.

The **[Foundation A. M. Ostrowski](#)for an international prize in higher mathematics**was created by Alexander Markovich Ostrowski (1893-1986) who from 1928 to 1958 was professor of mathematics at the University of Basel. The aim of the foundation is to promote mathematics by providing an international prize for the best achievements in pure mathematics or in the theoretical foundations of numerical mathematics. Since 1989 the first prize has been awarded, in general, every other year.

Read the original news release about Zhang's proof [here](#), and a UNH Magazine feature on his work [here](#).

The [University of New Hampshire](#), founded in 1866, is a world-class public research university with the feel of a New England liberal arts college. A land, sea, and space-grant university, UNH is the state's flagship public institution, enrolling 12,300 undergraduate and 2,200 graduate students.

Photograph available to download:
http://www.unh.edu/news/releases/2013/may/zhang3.jpg
Caption: Tom Zhang, lecturer in mathematics at the University of New Hampshire
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