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SASTRA PRIZE 2010

WEI ZHANG TO RECEIVE 2010 SASTRA RAMANUJAN PRIZE

The 2010 SASTRA Ramanujan Prize will be awarded to Wei Zhang, who is now a Benjamin Pierce Instructor at the Department of Mathematics, Harvard University, USA. This annual prize which was established in 2005, is for outstanding contributions by very young mathematicians to areas influenced by the genius Srinivasa Ramanujan. The age limit for the prize has been set at 32 because Ramanujan achieved so much in his brief life of 32 years. The $10,000 prize will be awarded at the International Conference on Number Theory and Automorphic Forms at SASTRA University in Kumbakonam, India (Ramanujan's hometown) on December 22, Ramanujan's birthday.

Dr. Wei Zhang has made far reaching contributions by himself and in collaboration with others to a broad range of areas in mathematics including number theory, automorphic forms, L-functions, trace formulas, representation theory and algebraic geometry. We highlight some of his path-breaking contributions: In 1997, Steve Kudla constructed a family of cycles on Shimura varieties and conjectured that their generating functions are actually Siegel modular forms. The proof of this conjecture for Kudla cycles of codimension 1 is a major theorem of the Fields Medalist Borcherds. In his PhD thesis, written under the direction of Professor Shou Wu Zhang at Columbia University, New York, Wei Zhang established conditionally, among other things, a generalization of the results of Borcherds to higher dimensions, and in that process essentially settled the Kudla conjecture. His thesis, written when he was just a second year graduate student, also extended earlier fundamental work of Hirzebruch-Zagier and of Gross-Kohnen-Zagier. The thesis opened up major lines of research and led to significant collaboration with Xinyi Yuan and his PhD advisor Shouwu Zhang. In the first of a series of joint papers (published in Compositio in 2009), the results of Wei Zhang's important thesis are generalized to totally real fields.

In a paper on heights of CM points in Shimura varieties, Wei Zhang along with Shou Wu Zhang and Xinyi Yuan establish an arithmetic analogue of a theorem of Waldspurger that connects integral periods to special values of L-functions. This paper which goes well beyond all earlier work on formulas of Gross-Zagier type will appear in the book series Annals of Mathematical Studies, Princeton.

Yet another outstanding contribution of Wei Zhang is conveyed in his two recent preprints - one on relative trace formulas and the Gross--Prasad conjecture and another on arithmetic fundamental lemmas. In these works he has made decisive progress on certain general conjectures related to the arithmetic intersection of Shimura varieties; in that process he has successfully transposed major techniques due to Jacquet and Rallis into an arithmetic intersection theory setting. With these two preprints and his seminal earlier work, Dr. Wei Zhang has emerged as a worldwide leader in his field.

Wei Zhang who hails from the People's Republic of China, was born on July 18, 1981. After obtaining a Bachelor's degree from Beijing University in 2004, he joined Columbia University to do his PhD. Even as a first year graduate student, while attending the NSF Focused Group Workshop at the University of Maryland in 2005, when he heard about the Kudla Conjecture, he started pursuing it. In just one year, he not only understood the conjecture, but also found an ingenious proof. Thus he shot to prominence very rapidly. After completing his PhD in 2009 at Columbia University under the supervision of Professor Shou Wu Zhang, he went to Harvard University where he was a Post-Doctoral Fellow in 2009-10, and currently holds the prestigious Benjamin Pierce Lectureship. At this very young age of 29, Dr. Zhang has made a profound influence in a wide range of areas in mathematics.

Wei Zhang was the unanimous choice of the SASTRA Ramanujan Prize Committee to receive the award this year. The international panel of experts who formed the 2010 Committee were: Chair - Krishnaswami Alladi (University of Florida), Dorian Goldfeld (Columbia University), Christian Krattenthaler (University of Vienna), Ken Ono (Emory University), Wolfgang Schmidt (University of Colorado), Jeffrey Vaaler (University of Texas, Austin), and Akshay Venkatesh (Stanford University).

Previous winners of the SASTRA Ramanujan Prize are Manjul Bhargava and Kannan Soundararajan in 2005 (two prizes), Terence Tao in 2006, Ben Green in 2007, Akshay Venkatesh in 2008, and Kathrin Bringmann in 2009. Thus Wei Zhang joins this impressive list of brilliant mathematicians who have made monumental contributions at a very young age.

Krishnaswami Alladi
Chair, 2010 SASTRA Ramanujan Prize Committee

OTHER LINKS

- Article in The Hindu, India's National Newspaper, on Wei Zhang's SASTRA Prize Lecture.

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