Mathematics People

Keller Awarded Sherfield Fellowship

MITCHEL KELLER of the Georgia Institute of Technology has been awarded a Marshall Sherfield Fellowship for two years' postdoctoral study at a British university. Keller received his bachelor's degree in mathematics from North Dakota State University and will receive his Ph.D. in May 2010 from Georgia Tech. His research interests include combinatorics, particularly finite partially ordered sets; extremal combinatorics; and online combinatorial algorithms. He is assistant director of the Math Genealogy Project and was chosen an Outstanding Teaching Assistant at Georgia Tech in 2008. He hopes to use the fellowship in the Department of Mathematics at the London School of Economics. The fellowships, two of which are awarded each year, are funded by the Marshall Sherfield Fellowship Foundation and administered by the Marshall Commission; they enable American scientists or engineers to undertake postdoctoral research for a period of one to two academic years at a British university or research institute.

—Elaine Kehoe

Rhodes Scholarships Awarded

A student in the mathematical sciences is among thirty-two American men and women who have been chosen as Rhodes Scholars by the Rhodes Scholarship Trust. The Rhodes Scholars were chosen from among 805 applicants from 326 different colleges and universities.

GRACE TIAO of Marietta, Georgia, graduated summa cum laude from Harvard College in 2008 with concentrations in English and American literature and language, and in history and science. An environmental scientist, she was manager of a 2008–09 expedition on ecosystem biodiversity in Antarctica, working with a New Zealand university. Tiao was features editor for the *Harvard Advocate,* Harvard's literary magazine, and an editor and staff writer for the *Harvard Science Review.* She also plays first violin in the Harvard Baroque Chamber orchestra. She has interned with the *Paris Review.* At Oxford, she plans to do the B.A. in mathematics and statistics.

—From a Rhodes Scholarship Trust announcement

Siemens Competition

Several students whose work involves the mathematical sciences have won prizes in the Siemens Competition in Math, Science, and Technology. SEAN KARSON of Trinity Preparatory School, Winter Park, Florida; DAN LIU of Liberal Arts and Science Academy High School, Austin, Texas; and KEVIN CHEN of William P. Clements High School, Sugar Land, Texas, won the team category and will share a US$100,000 scholarship for their mathematics research, titled "Related missing and decycling edges in directed graphs". The results of this project advance the infrastructure and knowledge of graph theory by shedding new light on a problem that has been open in the mathematics community since 1978. Their approach may open doors to a reduction of bottlenecks in complex networks such as the World Wide Web and transcontinental trade routes, thereby creating faster and more efficient processes. Their mentor was Jian Shen of Texas State University in San Marcos, Texas.

Karson has received the Rensselaer Polytechnic Institute Math and Science Award and is a National Merit Semifinalist. He used his love of puzzles to create a club called Rubik's Revenge to teach middle school students how to solve Rubik's Cube. He plays baseball and volunteers for the Center of Math, Arts, and Science Achievement, a program that encourages elementary school students to get excited about learning math and science. Liu is a member of the Liberal Arts and Science Academy's (LASA) National Honor Society Chapter and participates in the LASA Camerata Orchestra and Science Olympiad Team, as well as the Circle C Select Swim Team. He loves to play badminton and enjoys poker and computer games. Chen has been selected

a finalist at the U.S. Computing Olympiad, a semifinalist for the U.S. Physics Olympiad, and regional winner of the Physics Bowl. He was also a three-time U.S. Mathematics Olympiad qualifier. He enjoys practicing piano, playing tennis, and programming games in his free time.

RANDY JIA and DAVID LU of Detroit Country Day School in Beverly Hills, Michigan, received a scholarship of US$30,000 for their joint project in graph theory, "Matching preclusions for augmented cubes". Their project presents a way to measure the strength of a network in the event of link failure. They examined the matching preclusion number as it relates to the augmented cube graph. The augmented cube has been proposed as an example of a network that is resistant to link failure. The team answers the question of how many links need to be broken until it is no longer possible to pair up the nodes in the augmented cube. Their mentor was Eddie Cheng of Oakland University in Rochester, Michigan. Jia is a three-time United States Math Olympiad qualifier and received tenth place in the Michigan Math Prize Competition. He has participated in the Oakland University Summer Mathematics Institute every summer since eighth grade. He participates in various school volunteer opportunities, is a member of his school's track and field team, and enjoys basketball and fishing. He plans to major in finance/economics. Lu is a Science Olympiad participant and an active member of Quizbowl. He has participated in several mathematics competitions and attended the USA Mathematical Olympiad program in ninth grade. He was the MathCounts state winner in seventh and eighth grades and was among the top twelve in the national competition in eighth grade. He aspires to become a mathematics professor. He is a runner and participates in the Detroit Country Day School's cross country team, as well as in track and field.

LYNNELLE YE of Palo Alto High School, Palo Alto, California, received a US$50,000 scholarship for her project, "Chomp on graphs and subsets", in which she studied games in which two players take turns to eliminate nodes, or edges, of a graph. Game theory is applied in fields ranging from economics to engineering to systems in which individuals compete in a shared environment. The aim of the research was to understand the best possible strategy for playing this game and to determine which player will win from each starting graph when each plays her best possible strategy. She was mentored by Tirasan Khandhawit, a graduate student at the Massachusetts Institute of Technology. Ye won a gold medal at the 2008 China Girls Math Olympiad with the highest score on the United States team that year. She is also a three-time Math Olympiad Summer Program (MOSP) qualifier and two-time attendee. She has qualified for the USA Math Olympiad three times and been named to her school's Science Olympiad team each year since 2007. She has also qualified for the Research Science Institute. She enjoys reading, creative writing, art, and ballroom dancing. She hopes to become a professor of mathematics.

DMITRIY KUNISKY of Livingston High School, Livingston, New Jersey, was awarded a US$20,000 scholarship for his mathematics project, which concerned the number derivative. His approach consisted of applying more sophisticated techniques from the theory of probability to create new results regarding this function's behavior. These results may have applications both in approaches to long-standing problems of number theory and as a practical application to cryptography. He was mentored by Alex Kontorovich of Brown University. Kunisky hopes to be a research mathematician at a university or an independent laboratory. He is currently a member of the National Honor Society, as well as the French Honor Society, and is recognized as a National Merit Scholarship Semifinalist, an AP Scholar with Distinction, and a Merck State Scholar. He placed second at the West Point Bridge Design Competition. He is president of his school's Organization of Student Tutors, which helps match students needing assistance to students willing to tutor them. He also enjoys reading, watching plays, playing tennis and ultimate Frisbee, and playing the guitar and piano.

—From a Siemens Competition announcement