Seymour Receives Ostrowski Prize

PAUL D. SEYMOUR of Princeton University has received the 2003 Ostrowski Prize recognizing outstanding mathematical achievement. The prize carries a monetary award of 100,000 Swiss francs (approximately US$80,000) and a fellowship of 25,000 Swiss francs. The fellowship will be awarded to Seymour's student, MARIA CHUDNOVSKY. The prize ceremony will take place at the University of Waterloo on September 30 and October 1, 2004.

Citation

What follows is the citation prepared by the jury of the Ostrowski Prize.

Paul D. Seymour

Paul Seymour was born in 1950 in England, obtained his D.Phil. from the University of Oxford in 1975, and is currently a professor of mathematics at Princeton University. He received the George Pólya Prize in 1983 and the Fulkerson Prize in 1979 and 1994, the second time jointly with Neil Robertson and Robin Thomas. In 1994 he gave a plenary lecture at the International Congress of Mathematicians.

Paul Seymour has enriched mathematics with a number of spectacular results. His work is known not only by all discrete mathematicians but also by most theoretical computer scientists.

For instance, Seymour gave a precise characterization of totally unimodular matrices, a result which is one of the deepest in the theory of matroids. With Robertson and Thomas he characterized completely the graphs which cannot be embedded in three-space without two cycles being linked and also solved Pólya's permanent problem from 1913 and the next open case (one past the four-color theorem) of Hadwiger's conjecture of 1943. Robertson, Sanders, Seymour, and Thomas gave a new and simpler proof of the four-color theorem of Appel and Haken. Further, in a sequence of papers with Robertson he proved that, for every infinite collection of finite graphs, there is always one which can be obtained from another by deleting and contracting edges. Their work provides polynomially bounded algorithms for all those graph properties which are closed under deleting or contracting edges.

Recently Seymour and his student Chudnovsky combined their work with that of Seymour and his close collaborators Robertson and Thomas in order to prove the strong perfect graph conjecture of Berge. Berge's conjecture had stood since 1961 and was one of the most important open problems in graph theory. The chromatic number of a graph G is the minimum number of colors needed to color the vertices of G so that adjacent vertices have different colors. The clique number of G is the largest number of pairwise adjacent vertices of G. Those graphs for which the two numbers are equal for all induced subgraphs are known as perfect graphs. A hole of a graph is a chordless cycle of length at least four, and an antihole is the complement of such a cycle. Berge conjectured that a graph is perfect if and only if it contains no odd hole or antihole. The proof by Chudnovsky, Robertson, Seymour, and Thomas of Berge's conjecture is a profound contribution to the subject of combinatorial mathematics.

About the Prize

The Ostrowski Foundation was created by Alexander Ostrowski, for many years a professor at the University of Basel. He left his entire estate to the foundation and stipulated that the income should provide a prize for outstanding recent achievements in pure mathematics and the foundations of numerical mathematics. The prize is awarded every other year. The prize jury consists of representatives from the universities of Basel, Jerusalem, and Waterloo and from the academies of Denmark and the Netherlands. For the 2003 prize, the jury members are: Joram Lindenstrauss, David Masser, Cameron Stewart, Carsten Thomassen, and Robert Tijdeman.

Previous recipients of the Ostrowski Prize are Louis de Branges (1990), Jean Bourgain (1991), Miklos Laczkovich (1993), Marina Ratner (1993), Andrew Wiles (1995), Yuri Nesterenko (1997), Gilles Pisier (1997), Alexander Beilinson (1999), Helmut Hofer (1999), Henryk Iwaniec (2001), Peter Sarnak (2001), and Richard L. Taylor (2001).

—Allyn Jackson