



DAVID P. ROBBINS PRIZE

In 2005 the family of David P. Robbins gave the Mathematical Association of America funds sufficient to support a prize honoring the author or authors of a paper reporting on novel research in algebra, combinatorics, or discrete mathematics. The prize of \$5,000 is awarded every third year. David Robbins spent most of his career on the research staff at the Institute for Defense Analyses-Center for Communications Research (IDA-CCR) in Princeton. He exhibited extraordinary creativity and brilliance in his classified work while also finding time to make major contributions in combinatorics, notably to the proof of the MacDonalld Conjecture and to the discovery of conjectural relationships between plane partitions and alternating sign matrices. The 2008 prize is the first awarded by the Mathematical Association of America.

Citation

Neil J. A. Sloane

"The On-Line Encyclopedia of Integer Sequences," *Notices of the American Mathematical Society* 50 (2003), 912–915.

The MAA David P. Robbins Prize is for "a paper reporting on novel research in algebra, combinatorics, or discrete mathematics." For the first prize, we have chosen Neil Sloane's most recent paper describing his ongoing "on-line encyclopedia of integer sequences (OEIS)" efforts.

Although not quite a research paper in the usual sense, the paper describes an extraordinary research tool that has had an impact on mathematics far beyond that of almost any paper, especially in the areas that David Robbins cared so much about. In addition, this work is in many ways deeply in tune with Robbins's approach to mathematics; i.e., when in doubt, compute some examples!

The OEIS enables mathematicians to identify sequences from a few (perhaps very few) terms, giving them access to a wealth of information that might immediately point their research in useful directions. One of the most distinctive instances is when research in one area is connected to research in a completely unrelated area. In a random recent example, an algebraic geometer found that a sequence of dimensions, each difficult to compute, was the same sequence of numbers that arose in a topological context in physics. The interaction between the two of them led to a proof of the equivalence of the sequences, a more efficient algorithm to compute the sequence, and a joint paper. The importance and pervasiveness of this tool is evident from the number and diversity of papers that cite the OEIS.

Another measure of its importance comes from the fact that the database has more than 120,000 entries, an active editorial board with twenty-five members, and a Wikipedia entry. The accessibility of the project is evident from the fact that the list of major contributors includes undergraduates and from the fact that the tool is of genuine interest to students and amateur mathematicians as well as researchers.

The scale of the impact of this tool, as well as its combinatorial tilt and strong experimental flavor, make it especially appropriate to recognize by giving the first MAA Robbins Prize to Neil J. A. Sloane for his paper and the research that it describes.

Biographical Note

Neil J. A. Sloane received his Ph.D. in electrical engineering from Cornell University in 1967. After two years as an assistant professor there, he joined AT&T Bell Labs (now AT&T Shannon Labs), where he has been ever since. He is the author or coauthor of books on error-correcting codes, sphere packing, integer sequences, optics, and rock climbing. He is a member of the National Academy of Engineering, an AT&T Fellow, and an IEEE Fellow. He has received numerous awards, including the Chauvenet Prize of the MAA, the IEEE Hamming Medal, and the Shannon Award of the IEEE Information Theory Society.

Response from Neil J. A. Sloane

This is a very great honor, especially as David Robbins is responsible for one of the most famous sequences in "The On-Line Encyclopedia of Integer Sequences," the Robbins numbers 1, 2, 7, 42, 429, 7436, ..., entry A5130. I should like to thank the thousands of volunteers who have contributed to the OEIS over the years by sending in sequences, correcting or extending entries, and helping with the computer programs that keep it running. Without their help the OEIS would not exist in its present form. I should also like to thank AT&T for supporting this work for nearly forty years. Two things above all have made the forty years of work worthwhile: the ever-increasing list of articles that acknowledge help from the OEIS and the pleasure of seeing new sequences as they arrive (e.g., 1, 9, 9, 5, 5, 9, 9, 5, 5, 9, 1, 3 ..., A131744!).