Donaldson Receives Nemmers Prize

Photo courtesy of Imperial College London.

Simon Donaldson

Northwestern University has announced that SIMON DONALDSON is the recipient of the 2008 Nemmers Prize in Mathematics, believed to be the largest monetary award in the United States for outstanding achievements in the discipline. Awarded to scholars who made major contributions to new knowledge or the development of significant new modes of analysis, the prize carries a US$150,000 stipend.

Donaldson, Royal Society Research Professor at Imperial College, London, received the Frederic Esser Nemmers Prize in Mathematics for his "groundbreaking work in four-dimensional topology, symplectic geometry and gauge theory, and for his remarkable use of ideas from physics to advance pure mathematics." In connection with this award, Donaldson is scheduled to deliver public lectures and participate in other scholarly activities at Northwestern during the 2008–09 and 2009–10 academic years.

Donaldson received his B.A at Cambridge University and his D.Phil. from Oxford University. In 1986, only three years after completion of his doctorate, he was elected a fellow of the Royal Society, London. That same year he received the Fields Medal, widely recognized as the most prestigious honor for a mathematician under the age of 40. He was awarded the Royal Medal of the Royal Society in 1992, the Crafoord Prize in 1994, and the King Faisal Prize in 2006. In 2000 he was elected a foreign associate of the National Academy of Sciences.

"Donaldson's breakthrough work developed new techniques in the geometry of four-manifolds and the study of their smooth structures," said John Franks, professor and chair of mathematics at Northwestern. "His methods have been described as extremely subtle, using difficult nonlinear partial differential equations. Using instantons, solutions to the equations of Yang-Mills gauge theory, he gained important insight into the structure of closed four-manifolds. Gauge theory techniques also enabled him to show the existence of four-manifolds with no smooth structure and others with infinitely many. His work has provided the seminal steps for the work of others in the study of four-manifolds." More recently, Donaldson has made fundamental contributions to the understanding of symplectic manifolds, the phase-spaces of classical mechanics, and he shows that a surprisingly large part of the theory of algebraic geometry extends to them. His two books and more than 60 published papers are widely recognized for their originality as well as their elegance and clarity.

Northwestern University also announced that Paul R. Milgrom, the Shirley R. and Leonard W. Ely Jr. Professor of Humanities and Sciences at Stanford University, has been awarded the Erwin Plein Nemmers Prize in Economics, which also carries a US$150,000 stipend.

The Nemmers Prizes are made possible through bequests from the late Erwin E. Nemmers, a former member of the Northwestern University faculty, and his brother, the late Frederic E. Nemmers, both of Milwaukee. The prizes are awarded every other year. Previous mathematicians to receive the prizes have been Yuri I. Manin (1994), Joseph B. Keller (1996), John H. Conway (1998), Robert J. Aumann (1998), Edward Witten (2000), Yakov G. Sinai (2002), Mikhael Gromov (2004), and Robert P. Langlands (2006).

Consistent with the terms of the Nemmers bequests, the Erwin Plein Nemmers Prize in Economics (named in honor of the Nemmers' father) and the Frederic Esser Nemmers Prize in Mathematics (named by Erwin in honor of his brother) are designed to recognize "work of lasting significance" in the respective disciplines.

—From a Northwestern University news release