N E W S   R E L E A S E

Wilfrid Laurier University

Math lectures will explain voting and evolution of the universe

WATERLOO – One of the few experts who can apply mathematics to topics ranging from theoretical physics and voting rules will deliver two very different lectures when he visits Waterloo later this week.

Don Saari, director of the Institute for Mathematical Behavioral Sciences at the University of California, Irvine, will offer a math-based outline of the evolution of the universe on Thursday, March 9, at Perimeter Institute for Theoretical Physics. At Wilfrid Laurier University the next day, he will discuss how mathematical theorems allow people to understand several voting paradoxes.

"We are extremely fortunate to have someone of Dr. Saari's prominence deliver these two lectures," said Maria Gallego, a professor of economics at Laurier and one of the organizers of the lectures. "Few people have sufficient expertise to apply mathematics to such a range of topics."

In the first talk, entitled The Chaotic Evolution of Newton's Universe, Saari will describe how chaotic behaviour was discovered in the study of what is known as the Newtonian N-body problem and how that behaviour explains several celestial motions that appear strange. He will then provide a mathematical outline of the evolution of the universe under Newton's laws.

– more –

Though this talk is on celestial mechanics, no prior background in the mathematics of the N-body problem is required. Thursday's lecture will be delivered at 4 p.m. at Perimeter Institute.

Friday's lecture is entitled From Disposing Arrow's Dictator to Understanding All Those Mysteries about Voting. Saari will begin by outlining how Arrow's Impossibility Theorem created the negative impression that no social decision method is fair, and then challenge that impression.

"When you explore why the theorem states what it does, some very benign interpretations immediately follow – interpretations that show how to replace Arrow's Impossibility Theorem with positive conclusions," explains Saari. "In this manner, we can understand all of the standard voting paradoxes and identify the optimal voting rule."

Friday's lecture will begin at 2:30 p.m. in room SBE 1230 of Laurier's school of business and economics. Both lectures are open to the general public and admission is free.

The following week, Saari will deliver the Fields-Carleton Distinguished Lecture Series at Carleton University. The Fields Institute for Research in Mathematical Sciences, a Toronto-based mathematics research institution, is named in honour of John Charles Fields, the Canadian who established the Fields Medal – the premier award in mathematics, often called the Nobel Prize in mathematics.

Saari is distinguished professor of economics and mathematics at the University of California, Irvine, and director of the Institute for Mathematical Behavioral Sciences. He also earned the university's distinguished faculty award for research in 2004-05.

He was chief editor of the Bulletin of the American Mathematical Society for more than six years and has served on the editorial boards of several journals on analysis, dynamics, economics and decision analysis. He is a member of the National Academy of Sciences and the American Academy of Arts and Sciences, a Guggenheim Fellow, the past chair of the U.S. National Committee of Mathematics and chair of the U.S. delegation to the 2002 general assembly of the International Mathematical Union.

– more –

The Newtonian lecture is being presented as part of Laurier's speaker series in computational science and applied and statistical modelling (CSASM). CSASM was launched by Laurier professors Ilias Kotsireas and Roderick Melnik in 2004 to strengthen links between academia and industry. Its world-renowned speakers attract attention from universities and institutions across southwestern Ontario. To learn more, please visit http://www.mmcs.wlu.ca/csasm/.

The lectures were made possible by the support of various departments at Laurier and the University of Waterloo, as well as the Fields Institute and the Shared Hierarchical Academic Research Computing Network (SHARCNET.)

– 30 –