University of Manitoba

Pacific Institute for the Mathematical Sciences

PIMS-UManitoba Distinguished Lecture

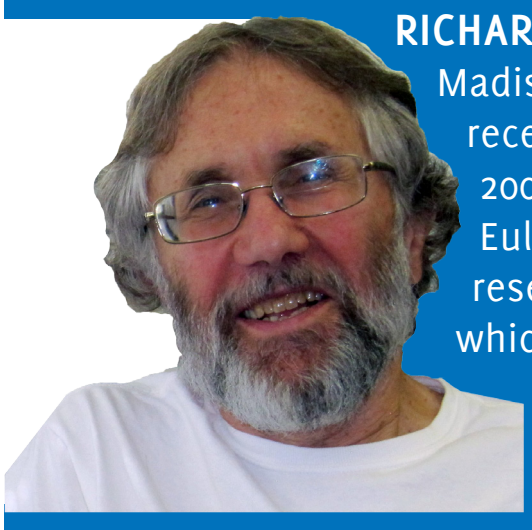
Richard A. Brualdi (UW-Madison)

1 March, 2016
2:30 pm

Robert B. Schultz Lecture Theatre
University of Manitoba

COMBINATORIAL MATRICES

Matrices contain combinatorial information. They may provide alternative representations of combinatorial ideas. Examples include permutation matrices as representations of permutations of a finite set, and adjacency matrices as representations of a finite graph. The linear algebraic properties of these matrices may provide useful combinatorial information, and combinatorial information about a matrix may impact its linear algebraic properties. At the same time, some combinatorial constructs are defined by matrices. A notable example are the alternating sign matrices which arise in a number of ways including from the partial order on permutations called the Bruhat order. In this talk we will explore various connections between combinatorics and matrices, combinatorial matrices.



RICHARD A. BRUALDI is an emeritus faculty member at the University of Wisconsin-Madison (UW-Madison) and former Bascom Professor of Mathematics. In 1986 he received the Chancellor's Award for Excellence in Teaching at UW-Madison. In 2000, the Institute of Combinatorics and its Applications (ICA) awarded him the Euler Medal for a lifetime career of distinguished contributions to combinatorial research by an ICA member. In 2005 the International Linear Algebra Society, of which he is a former president, presented him with the Hans Schneider Prize in Linear Algebra for distinguished contributions to the field. In 2012 he was elected as a Fellow of the American Mathematical Society and of the Society for Industrial and Applied Mathematics.