



UNIVERSITY
OF MANITOBA



Pacific Institute *for the*
Mathematical Sciences

PIMS-UManitoba Distinguished Lecture

Faith Ellen (University of Toronto)

20 October, 2016

4:00 pm

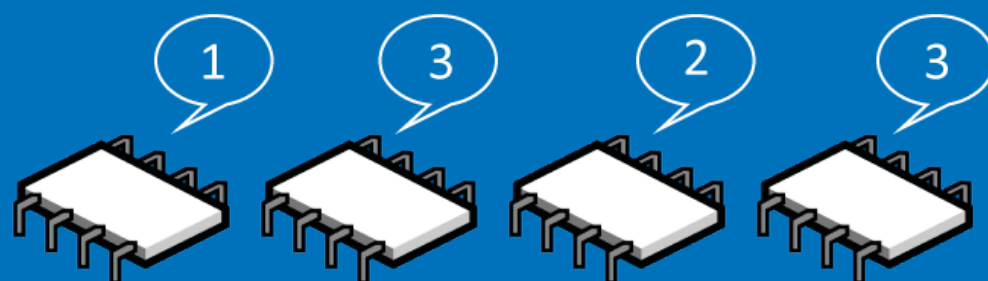
Robert B. Schultz Lecture Theatre

University of Manitoba

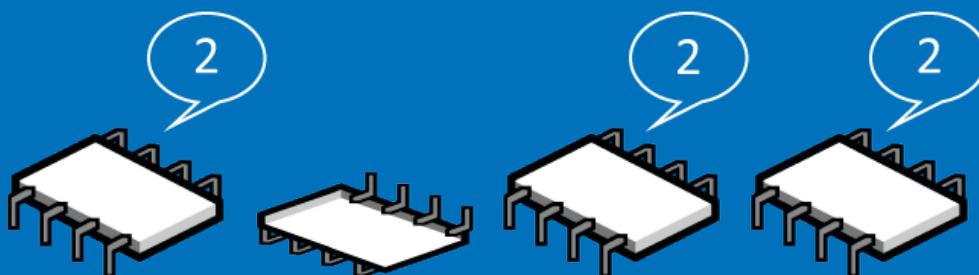
ASYNCHRONOUS CONSENSUS

The consensus problem plays a central role in the theory of distributed computing. I will prove that consensus is impossible to solve in some asynchronous shared memory systems and I will present some algorithms for solving it in others, together with matching lower bounds on the amount of time and space needed. Consensus is universal: using consensus and read/write registers, I will show how to implement any shared object. The consensus hierarchy is used to classify the computational power of shared objects. I will conclude by discussing some limitations of this classification that have been recently discovered.

Before



After



FAITH ELLEN is a Professor of Computer Science at the University of Toronto. She received her Ph.D. from the University of California, Berkeley, in 1982. Her research spans the theory of distributed computing, complexity theory and data structures. From 1997 to 2001, she was vice chair of SIGACT, the leading international society for theory of computation and, from 2006 to 2009, she was chair of the steering committee for PODC, the top international conference for theory of distributed computing. In 2014, she co-authored the book, "Impossibility Results for Distributed Computing". Faith is a Fellow of the Association for Computing Machinery.