

PIMS/UCalgary Distinguished Colloquium

Steve Kirkland (University of Manitoba)

March 13, 2015
2:00 pm, Room MS 211

The University of Calgary

OPTIMISING THE KEMENY CONSTANT FOR A MARKOV CHAIN

Markov chains are a much-studied class of stochastic processes, and it is well known that if the transition matrix A associated with a Markov chain possesses a certain property called primitivity, then the long-term behaviour of the Markov chain is described by a particular eigenvector of A (known as the stationary distribution vector). Rather less well-known is the Kemeny constant for a Markov chain, which can be interpreted in terms of the expected number of time steps taken to arrive at a randomly chosen state, starting from initial state i . In particular, if the Kemeny constant is small, then we can think of the Markov chain as possessing good mixing properties.



That observation motivates our interest in identifying transition matrices for which the Kemeny constant is as small as possible. In this talk, we will give a short overview of the Kemeny constant, and discuss some results dealing with the problem of minimising the Kemeny constant over transition matrices that are subject various constraints. In particular, we will find the minimum value of the Kemeny constant for transition matrices having a specified stationary distribution vector, and characterise those transition matrices yielding that minimum value.

WEBSITE: <http://www.pims.math.ca/scientific-event/150313-pdcsk>

OTHER INFORMATION: *Preceded by a reception in the lounge (MS 461) at 1:30pm. Prof Kirkland will also be speaking during the Combinatorics and Discrete Geometry seminar from 10:00-10:50am in MS 431.*