Differential equation approximations for Markov chains

by

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One can often guess the form of a differential equation which may serve as an approximation to a given Markov chain. I will describe a general procedure, which leads to explicit estimates on the error probabilities in making such an approximation. The general theory will be illustrated in analysing the behaviour of a core-finding algorithm for random hypergraphs with prescribed edge-weight and vertex-degree distributions.

This is joint work with Richard Darling.