

Department of Mathematical Sciences
The Johns Hopkins University

SEMINAR

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September 19, 2002
304 Whitehead Hall
Refreshments: 3:30 p.m.
Seminar: 4:00 p.m.

APPROXIMATING THE PERMANENT

ABSTRACT

The permanent of a matrix A is (roughly speaking) the determinant without the alternating sign. From a graph-theoretic view, it corresponds to the number of perfect matchings of the bipartite graph with adjacency matrix A .

We resolve the computational complexity of computing the permanent. In particular, we present a randomized algorithm which approximates (within an arbitrarily close factor) the permanent of an arbitrary non-negative matrix in time polynomial in the size of the matrix.

I'll focus the talk on an interesting aspect of our algorithm which involves a sequence of Markov chains, where samples from one chain are used to design the next chain.

[This is joint work with Mark Jerrum (Edinburgh) and Alistair Sinclair (Berkeley).]