

## **abstract**

Computer Science/Discrete Mathematics Seminar I  
Topic:

Speaker:

Affiliation:

Date:

Time/Room:

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We show that one can approximate the least fixed point solution for a multivariate system of monotone probabilistic polynomial equations in time polynomial in both the encoding size of the system of equations and in  $\log(1/\epsilon)$ , where  $\epsilon > 0$  is the desired additive error bound of the solution. (The model of computation is the standard Turing machine model.)

We use this result to resolve several open problems regarding the computational complexity of computing key quantities associated with some classic and heavily studied stochastic processes, including multi-type branching processes and stochastic context-free grammars.

(Joint work with Kousha Etessami and Alistair Stewart.)