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Magdeburg, Germany. *Rapid mixing and Markov bases.*

In the past, research in algebraic statistics has mostly focused on determination of Markov bases whereas mixing times of the resulting Markov chains have not received significant attention. In this talk, we discuss the behavior of Markov chains on lattice points of polytopes using Markov bases. We show that, in fixed dimension, those Markov chains cannot mix rapidly. We also present a way to adapt Markov bases so that the fastest mixing behavior can be obtained. (Received June 03, 2015)