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Seminario de Probabilidades de Chile.

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Título: Error Bounds for the One-Dimensional Constrained Langevin Approximation for Density Dependent Markov Chains.

Resumen: The stochastic dynamics of chemical reaction networks are often modeled using continuous-time Markov chains. However, except in very special cases, these processes cannot be analysed exactly and their simulation can be computationally intensive. An approach to this problem is to consider a diffusion approximation. The Constrained Langevin Approximation (CLA) is a reflected diffusion approximation for stochastic chemical reaction networks proposed by Leite & Williams. In this work, we extend this approximation to (nearly) density dependent Markov chains, when the diffusion state space is one-dimensional. Then, we provide a bound for the error of the CLA in a strong approximation. Finally, we discuss some applications for chemical reaction networks and epidemic models, illustrating these with examples. Joint work with Ruth Williams.

El enlace para conectarse al seminario es:

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