

# Seminário de sistemas dinâmicos e estocásticos

IMECC - UNICAMP

**Título: Mixing rates for chains of infinite order.**

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**Resumo:**

Non-Markovian processes are ubiquitous, but they are much less understood compared to Markov processes. We model non-Markovianity using probability kernels that can depend on its entire history. The continuity rate characterizes how the dependence of kernel on the past decays. One key question is to understand how the mixing rates and decay of correlation are related to the continuity rate. Pollicott (2000) and Bressaud, Fernandez, Galves (1999) showed that if the continuity rate decays as  $O(1/n^c)$ , for  $c$  strictly larger than 1, then the correlation also decays as  $O(1/n^c)$ . Johansson, Oberg, Pollicott (2007) proved the uniqueness of the stationary measure compatible with kernels with the continuity rate in  $O(1/n^c)$ , for  $c$  strictly larger than  $1/2$ . Moreover, Berger, Hoffman, Sidoravicius (2018) established that there are kernels with multiple compatible measures whenever  $c$  strictly smaller than  $1/2$ . Therefore, the natural question is to understand the mixing rates and correlation decays when  $c$  is in  $[1/2, 1]$ . In this talk, I will exhibit upper bounds for the mixing rates when the continuity rate decays as  $O(1/n^c)$ , for  $c \in (1/2, 1]$ .