

# On some ergodicity properties for time inhomogeneous Markov processes with $T$ -periodic semigroup

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(joint work with Reinhard Höpfner)

## Abstract

We consider a time inhomogeneous strong Markov process  $(\xi_t)_{t \geq 0}$  taking values in a Polish state space whose semigroup has a  $T$ -periodic structure. After reviewing some conditions which imply ergodicity of the grid chain  $(\xi_{kT})_{k \in \mathbb{N}_0}$ , and thus ergodicity of the  $T$ -segment chain  $((\xi_{kT+s})_{0 \leq s \leq T})_{k \in \mathbb{N}_0}$ , we formulate a new and more general condition for  $d$ -dimensional diffusions. It can be easily verified in terms of drift and diffusion coefficient of the process, and allows to deal both with unbounded coefficients and possibly degenerate diffusion term.