

**Krühner, Paul; Larsson, Martin**

**Affine processes with compact state space.** (English) Zbl 1390.60277  
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Summary: The behavior of affine processes, which are ubiquitous in a wide range of applications, depends crucially on the choice of state space. We study the case where the state space is compact, and prove in particular that (i) no diffusion is possible; (ii) jumps are possible and enforce a grid-like structure of the state space; (iii) jump components can feed into drift components, but not vice versa. Using our main structural theorem, we classify all bivariate affine processes with compact state space. Unlike the classical case, the characteristic function of an affine process with compact state space may vanish, even in very simple cases.

**MSC:**

[60J25](#) Continuous-time Markov processes on general state spaces  
[60J27](#) Continuous-time Markov processes on discrete state spaces  
[60J75](#) Jump processes (MSC2010)

Cited in 4 Documents

**Keywords:**

[affine processes](#); [compact state space](#); [Markov chains](#)

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**References:**

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