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Smoothness and spectral representations of continuous state branching with immigration semigroups

Abstract

In this talk we derive smoothness properties of the semigroups associated with a large class of continuous state branching processes with immigration. Our approach consists of two steps. First, we analyse the regularity of the absolutely continuous part of the invariant measure, which in particular involves new results on the smoothness of positive infinitely divisible distributions on the positive half-line. The second step consists of applying a refinement of Ogura's spectral expansion of the transition kernels. Further applications of this spectral representation will be discussed as well.

This is joint work with Marie Chazal and Pierre Patie.