Title

Title

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Contents

Abstract

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Frequently used notation

$pB(E)$: space of positive Borel functions on E.

$bB(E)$: space of bounded Borel functions on E.

$pbB(E)$: space of positive bounded Borel functions on E.

$pbB_c(E)$: space of positive bounded Borel functions on E with compact support.

$B^{(a,b)}(E)$: space of Borel functions on E with range (a,b), p. def:f_range ??.

$pC(E)$: space of positive, continuous functions on E.

$pbC(E)$: space of positive,bounded, continuous functions on E.

$pC_c(E)$: space of positive, continuous functions on E with compact support.

$C^{(a,b)}(E)$: space of continuous functions on E with range (a,b), p. def:f_range ??.

$C_F(E)$: space of finite charges (signed measures) on E.

E : Polish space.

L_R : Laplace functional of R.

$L^{p,a}(\mathbb{R}^d)$: space of functions on $\mathbb{R}^d$ such that af^p is Lebesgue integrable, p. def:L_ap ??.

$L^q_{loc}\left((0,\infty), L^{p,a}(\mathbb{R}^d)\right)$: space of Lebesgue measurable functions $f(\cdot,\cdot)$ on $(0,\infty)\times\mathbb{R}^d$ such that for any $0<t<\infty$ $f(t,\cdot)\in L^{p,a}(\mathbb{R}^d)$ and $\|f(t,\cdot)\|_{a,p}$ is locally Lebesgue integrable.

$M_F(E)$: space of finite measures on E.

$Q_t(\cdot,\cdot)$: transition semi-group of Measure Valued Branching process.

$p_t(\cdot)$: density of transition function of Brownian motion.

R_{++} : set of strictly positive numbers.

$\stackrel{d}{=}$ - equality in distribution.

$\underset{w}{\Longrightarrow}$ - weak convergence.

Chapter 1

Introduction

1.1 A

1.2 B

Chapter 2

Main Result

2.1 A

2.2 B