

Measure-Valued Continuous Curves and Processes in Total Variation Norm

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Abstract: We present several equivalent characterizations of continuous curves in the total variation norm in the space of purely atomic finite measures. This enable us to provide a sufficient condition for a purely atomic finite measure-valued stochastic process to possess a version with continuous sample paths in the total variation norm. This criterion is in the form of Kolmogorov's continuity theorem. As an application, we study the sample path property of finite measure-valued diffusions with immigrations constructed by Shiga (1990).