Generalized Time-Change and Continuous-State Branching Processes with Immigration

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Abstract: We provide a representation of continuous-state branching processes with immigration by solving a functional equation which can be seen as a generalized time-change. Stability of the solutions is studied and gives, in particular, limit theorems (of a type previously studied by Grimvall, Kawazu and Watanabe, and Li) and a simulation scheme for continuous-state branching processes with immigration.