

Chung, K. L.

Doubly-Feller process with multiplicative functional. (English) [Zbl 0603.60066](#)
Stochastic processes, 5th Semin., Gainesville/Fla. 1985, Prog. Probab. Stat. 12, 63-78 (1986).

[For the entire collection see [Zbl 0591.00011](#).]

A doubly-Feller process is a Feller process whose transition function has also the strong Feller property (i.e. sends bounded measurable functions to bounded continuous functions). This paper contains the following results, loosely stated. Let X be a doubly Feller process then

1. If B is an open, regular subset of the state space, then X killed outside B is doubly Feller.
2. The transition function $Q_t f(x) = E^x \{M_t f(X_t)\}$ is doubly Feller, whenever M is a multiplicative functional satisfying certain moment conditions.

These results apply, for example, to the case where X is Brownian motion, M is the Feynman-Kac functional, and B is taken to be relatively compact; the conclusion is that

$$x \rightarrow E^x [M_t f(X_t); \quad t < \text{first exit from } B]$$

is a continuous function on B , vanishing at the boundary, for each bounded measurable function $f : B \rightarrow \mathbb{R}$.

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MSC:

- [60J25](#) Continuous-time Markov processes on general state spaces
- [60J57](#) Multiplicative functionals and Markov processes
- [60J40](#) Right processes

Cited in **9** Documents

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[multiplicative functional](#); [Feller process](#); [doubly Feller process](#); [Feynman-Kac functional](#)