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**Existence and uniqueness results for impulsive hybrid stochastic delay systems.** (English)

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Summary: This paper investigates the existence and uniqueness of solutions for a general class of impulsive and switched hybrid stochastic delay systems. Due to the impulse effects and time delay, solutions of an impulsive and switched hybrid stochastic delay system have to be formulated and considered to be evolving in the space of piecewise continuous functions on the delay interval. The basic theory established here can also be applied to impulsive stochastic functional differential equations as a special case.

**MSC:**

- [34K50](#) Stochastic functional-differential equations
- [34K45](#) Functional-differential equations with impulses
- [93C30](#) Control/observation systems governed by functional relations other than differential equations (such as hybrid and switching systems)
- [34K34](#) Hybrid systems of functional-differential equations
- [34A36](#) Discontinuous ordinary differential equations

Cited in **10** Documents

**Keywords:**

existence; uniqueness; impulsive differential equation; stochastic differential equation; functional differential equation; hybrid system; time-delay