

Generalization of stochastic calculus and its applications in large deviations theory

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§ 1

STOCHASTIC CALCULUS

Ito integral: $f \in L^2$

Thus, I came to the conclusion that the designer of a new system must not only be the implementer and first large-scale user; the designer should also write the first user manual.

The separation of any of these four components would have hurt T_EX significantly. If I had not participated fully in all these activities, literally hundreds of improvements would never have been made, because I would never have thought of them or perceived why they were important.

But a system cannot be successful if it is too strongly influenced by a single person. Once the initial design is complete and fairly robust, the real test begins as people with many different viewpoints undertake their own experiments.

Ito integral: $f \in \mathcal{L}^2$

This is a citation [1].

☐ One

☐ Three

☐ Two

☐ Four

bla bla bla

Ito isometry: $f \in L^2$

Differential formula

bla bla bla

§ 2

LARGE DEVIATIONS THEORY

Large deviations theory

Column 1

The Earth, as a habitat for animal life, is in old age and has a fatal illness. Several, in fact. It would be happening whether humans had ever evolved or not. But our presence is like the effect of an old-age patient who smokes many packs of cigarettes per day—and we humans are the cigarettes.

Column 2

Since the mid-1990s, humans have taken an unprecedented step in Earthly annals by introducing not just exotic flora or fauna from one ecosystem into another, but actually inserting exotic genes into the operating systems of individual plants and animals, where they're intended to do exactly the same thing: copy themselves, over and over.

§ 3

CONCLUSION

Possible areas of interest

- ★ Extension to SDEs with anticipating coefficients
- ★ Near-Markov property
- ★ Girsanov theorem for generalized integration
- ★ Freidlin-Wintzell type result for SDEs with anticipating initial conditions

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Bibliography

- 1 C.R. Hwang, H.H. Kuo, K. Saitô et al., “A general Itô formula for adapted and instantly independent stochastic processes”, *Communications on Stochastic Analysis* 10(3), 2016.