

Xu Jiagu, World Scientific Publishing, Farrer Road P.O. Box 128, Singapore 9128, Republic of Singapore

Lee Peng Yee, Department of Mathematics, National University of Singapore, Kent Ridge, Singapore 0511, Republic of Singapore

Stochastic Integrals of Itô and Henstock

The Itô integral is well-known. It has been actively studied in recent years and applied successfully to solving stochastic difference equations. The technique used is measure-theoretic. On the other hand, the Henstock integral uses Riemann sums in its definition and is able to achieve such generality that it is known to include Wiener and Feynman integration. Stochastic integrals using Henstock's theory have been attempted by McShane, T. W. Lee, and most recently by Henstock. In this talk we show that Henstock's theory also includes the Itô integral. This is achieved by combining the ideas of Henstock using Riemann sums and of McShane using belated divisions. Furthermore, using the stochastic integral of Henstock we can obtain Itô's formula.