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Semi-analytical methods for solving Ito stochastic models on the notion of Karhunen-Loève Brownian motion transform

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This chapter presents the concept of the Karhunen-Loève finite series expansion technique for obtaining the solutions of Ito linear stochastic differential equations with and without vibration parameters by using the Daftardar-Jafari Method (DJM) and Picards Iterative Method (PIM) as the approximate-analytical methods of solutions. Four applicable examples are considered. The results obtained from DJM are compared with those of the PIM. The results show that DJM and PIM are very effective and reliable in obtaining approximate solutions based on the comparison.

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