Abstract

The aim of the project is to understand the construction of Brownian Motion and that of stochastic integral. The construction of stochastic integral with respect to martingales has been carried out rigorously. Further, the stochastic integration developed by Ito was for a nice measurable class of functions; was in 2008 expanded to a larger class by Kuo. In this project I have also studied about the extension of stochastic integration developed by Kuo recently. The idea behind the new stochastic integral has been conveyed through many examples. I have also talked about the existence and uniqueness of solutions to the stochastic differential equations which are also used to study the trajectory of a particle undergoing random motion.