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Hui-Hsiung Kuo* (kuo@math.lsu.edu), Department of Mathematics, Louisiana State University, Baton Rouge, LA 70803. *An extension of the Ito theory to adapted and instantly independent stochastic processes.*

We develop a new theory to extend the Ito theory of stochastic integration to adapted and instantly independent stochastic processes. The new theory is based on the idea of using the left endpoints and the right endpoints of subintervals to evaluate the Ito part and the counter part, respectively, of an integrand. We extend the Ito formula and the isometry formula to the new stochastic integral. We show that multiple Wiener-Ito integrals can be treated as iterated integrals in the new theory. Moreover, we introduce the concepts of near-martingale property and near-Markov property for the new stochastic integration. (Received September 19, 2017)