

An approach to asymptotic error distributions of rough differential equations

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We study asymptotic error distributions of rough differential equations driven by the fractional Brownian motion whose Hurst parameter H which satisfies $\frac{1}{3} < H < \frac{1}{2}$ for several approximation schemes. To this end, we introduce an interpolation process between the solution and the approximate solution. Also we study limit theorems of weighted sum processes of Wiener chaos of order 2. Our proof is based on the fourth moment theorem for Wiener chaos of finite order, estimates of multidimensional Young integrals and integration by parts formula in the Malliavin calculus. This is a joint work with Nobuaki Naganuma (Kumamoto University).