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Averaging principle for fast-slow system driven by mixed fractional Brownian rough path

This work is devoted to studying the averaging principle for fast-slow system of rough differential equations driven by mixed fractional Brownian rough path. The fast component is driven by Brownian motion, while the slow component is driven by fractional Brownian motion with Hurst index H $(1/3 < H \leq 1/2)$. Combining the fractional calculus approach to rough path theory and Khasminskii's classical time discretization method, we prove that the slow component strongly converges to the solution of the corresponding averaged equation in the L^1-sense. The averaging principle of this type for a fast-slow system in the framework of rough path theory seems new.

This is a joint work with Bin Pei and Yong Xu.
