CROSS-VARIATION OF YOUNG INTEGRAL WITH RESPECT TO LONG-MEMORY FRACTIONAL BROWNIAN MOTIONS

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Abstract: We study the asymptotic behaviour of the cross-variation of two-dimensional processes having the form of a Young integral with respect to a fractional Brownian motion of index $H > \frac{1}{2}$. When H is smaller than or equal to $\frac{3}{4}$, we show asymptotic mixed normality. When H is stricly greater than $\frac{3}{4}$, we obtain a limit that is expressed in terms of the difference of two independent Rosenblatt processes.