

ON THE ALMOST SURE CONVERGENCE OF THE SQUARE VARIATION  
OF THE BROWNIAN MOTION

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*Abstract:* The paper deals with the problem of almost sure (a.s.) convergence of the square variation of the Brownian motion when the diameters  $d_n$  of partitions of the time interval tend to zero. It is known that if the diameters converge fast enough, namely if  $d_n$  is of order less than  $\lg^{-1}n$ , then a.s. convergence takes place. On the other hand, we show that there exists a sequence of partitions with diameters  $d_n$  of order less than  $\lg^{-\alpha}n$  for any  $0 < \alpha < 1$  such that the Brownian square variation diverges a.s.

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**Key words and phrases:** -

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