SKOROKHOD PROBLEM - ELEMENTARY PROOF OF THE AZEMA-YOR FORMULA

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Abstract: Let μ be a centered probability measure with the finite second moment. Let the stopping time T for the Brownian motion W be defined as

$$T = \inf\{t \geq 0; \Psi(W_t) \leq \sup_{0 \leq s \leq t} W_s\},$$

where Ψ is a barycenter function of measure μ. Azema and Yor [1] have shown that W_T has then the distribution μ and $ET = \int x^2 \mu d(x)$. This paper contains an elementary proof of this result.

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