

**THÉORÈMES LIMITES POUR CERTAINES
FONCTIONNELLES ASSOCIÉES AUX PROCESSUS
STABLES SUR L'ESPACE DE HÖLDER**

M. AIT OUAHRA ET M. EDDAHBI

Abstract

In this paper we study the Hölder regularity property of the local time of a symmetric stable process of index $1 < \alpha \leq 2$ and of its fractional derivative as a doubly indexed process with respect to the space and the time variables. As an application we establish some limit theorems for occupation times of one-dimensional symmetric stable processes in the space of Hölder continuous functions. Our results generalize those obtained by Fitzsimmons and Gettoor for stable processes in the space on continuous functions. The limiting processes are fractional derivatives and Hilbert transforms of local times.

2000 *Mathematics Subject Classification.* 60F25, 60G52.

Mots-clés. Processus stables, temps local, transformé de Hilbert, dérivée fractionnaire, fonctionnels additives, norme de Hölder.

Cette note a été complétée au moment où le second auteur était en visite au *Centre de Recerca Matemàtica* (CRM) Barcelona, Spain.