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Un principe de réflexion pour le mouvement brownien de Paul Lévy à trois paramètres. (A reflection principle for the Lévy Brownian motion depending on three parameters). (French)

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Let $B(x)$, $x \in \mathbb{R}^3$, be a three parameters Lévy Brownian motion. Denote by $L(H^+)$, $L(H^-)$ the closed subspaces of L^2 spanned respectively by

$$\{B(x) : x \in H_0^+ = \mathbb{R}^2 \times (0, +\infty)\} \quad \text{and} \quad \{B(x) : x \in H_0^- = \mathbb{R}^2 \times (-\infty, 0)\}.$$

We prove that conditional on $L(H^+) \cap L(H^-)$ the processes $B(x)$, $x \in H_0^+$, and $B(y)$, $y \in H_0^-$, are independent and identical in law. Moreover, the associated covariance function coincides with the Green function of the second kind for the bilaplacian Δ^2 defined on H_0^+ . Some consequences of this result are mentioned.

MSC:

60J65 Brownian motion

60G60 Random fields

Keywords:

reflection principle; three parameters Lévy Brownian motion; Green function