ON DUAL GENERATORS FOR NON-LOCAL SEMI-DIRICHLET FORMS

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Abstract: Let $k(x, y)$ be a measurable function defined on $E \times E$ off the diagonal, where E is a locally compact separable metric space, and let m be a positive Radon measure on E with full support. In 2012, we showed that a quadratic form having k as a Lévy kernel becomes a lower bounded semi-Dirichlet form on $L^2(E; m)$ which is non-local and regular. Then there associates a Hunt process corresponding to the semi-Dirichlet form. In the case where $E = \mathbb{R}^d$, we will show that the dual form of the semi-Dirichlet form also produces a Hunt process by taking a killing. As a byproduct, a precise description of the infinitesimal generator of the dual form is also given.

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