

WEIGHTED POINCARÉ INEQUALITIES FOR NONLOCAL DIRICHLET FORMS

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Abstract: Let V be a locally bounded measurable function on \mathbb{R}^d such that $\mu_V(dx) = C_V e^{-V(x)} dx$ is a probability measure. Explicit criterion are presented for weighted Poincaré inequalities of the following non-local Dirichlet form

$$D_{\rho,V}(f, f) = \iint_{\{|x-y|>1\}} (f(y) - f(x))^2 \rho(|x-y|) dy \mu_V(dx).$$

Taking $\rho(r) = e^{-\delta r} r^{-(d+\alpha)}$ with $0 < \alpha < 2$ and $\delta \geq 0$, we get some conclusions for general fractional Dirichlet forms, which not only complete our recent work [2], but also improve the main result in [1].

References

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