Heat kernels of Schrödinger operators

Alexander Grigor'yan

Abstract

We present two-sided estimates for the heat kernel of the elliptic Schrödinger operator $-\Delta + \Phi$, where Δ is the Laplace operator in $\mathbf{R}^n$ and Φ is a smooth function in $\mathbf{R}^n$. The results include a critical potential Φ of the form $\Phi(x) = c|x|^{-2}$, $|x| > 1$. The proof is based on a joint work with L.Saloff-Coste providing conditions for the stability of the parabolic Harnack inequality under a non-uniform change of measure on weighted Riemannian manifolds.

References

[1] A. Grigor'yan "Heat kernels on weighted manifolds and applications", to appear in *Cont. Math.*, 2005.

[2] A. Grigor'yan and L. Saloff-Coste "Stability results for Harnack inequalities", *Ann. Inst. Fourier, Grenoble* **55** (2005).