

The logarithmic Dirichlet Laplacian on Ahlfors regular spaces

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Abstract

The Laplace-Beltrami operator is a fundamental tool in the study of compact Riemannian manifolds. In this talk, I will introduce the logarithmic analogue of this operator on Ahlfors regular spaces. These are metric-measure spaces that might lack any differential or algebraic structure. Examples are compact Riemannian manifolds, several fractals, self-similar Smale spaces and limit sets of hyperbolic isometry groups. Further, this new operator is intrinsically defined, its spectral properties are analogous to those of elliptic pseudo-differential operators on manifolds and exhibits compatibility with non-isometric actions in the sense of noncommutative geometry. This is joint work with Bram Mesland (Leiden).