

The behaviour of the eigenvalues for a class of operators related to some self-affine fractals in the plane

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ABSTRACT

The obtaining of sharp estimates for the asymptotic behaviour of the eigenvalues of the (semi-elliptic) operator acting in the anisotropic Sobolev space

$$\overset{\circ}{W}_2^{(1,2)}(\Omega) = \left\{ u \in W_2^{(1,2)}(\Omega) : u|_{\partial\Omega} = \frac{\partial u}{\partial x_2} |_{\partial\Omega} = 0 \right\}$$

generated by the quadratic form $\int_{\Omega} f(\gamma) \overline{g(\gamma)} d\mu(\gamma)$ is investigated. Here μ is an appropriate self-affine fractal measure on the unit disc $\Omega \subset \mathbb{R}^2$.

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