Abstract

We study the spectral properties of the compact non-negative self-adjoint operator $T = A^{-1} \circ \text{tr} \Gamma$ acting in the anisotropic Sobolev space $H^{s,a}_2(\mathbb{R}^n)$ and give two-sided estimates for the asymptotic behaviour of its eigenvalues $\lambda_k(T)$, where $A$ is a semi-elliptic differential operator of type

$$Au(x) = (-1)^{s_1} \frac{\partial^{2s_1} u(x)}{\partial x_1^{2s_1}} + \cdots + (-1)^{s_n} \frac{\partial^{2s_n} u(x)}{\partial x_n^{2s_n}} + u(x),$$

and $\text{tr} \Gamma$ a special trace operator on an anisotropic $d$-set $\Gamma$. 