A NOTE ON ANISOTROPIC POTENTIALS ASSOCIATED WITH THE LAPLACE–BESSEL DIFFERENTIAL OPERATOR

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Abstract. In this note the anisotropic maximal operator and anisotropic Riesz potentials generated by the generalized shift operator are investigated in the anisotropic $B$-Morrey space $L_{p,\lambda,\gamma}(\mathbb{R}^n_k)$. We prove that the anisotropic $B$-maximal operator $M_{\gamma}$ is bounded on the anisotropic $B$-Morrey space $L_{p,\lambda,\gamma}(\mathbb{R}^n_k)$. Also the anisotropic $B$-Riesz potential $R_{\gamma}^{\alpha}$ is bounded from the anisotropic $B$-Morrey spaces $L_{p,\lambda,\gamma}(\mathbb{R}^n_k)$ to $L_{q,\lambda,\gamma}(\mathbb{R}^n_k)$ if and only if $1/p - 1/q = \alpha/(\|a\| + (a,\gamma) - \lambda)$ and $1 < p < (\|a\| + (a,\gamma) - \lambda)/\alpha$, and its modified version $\tilde{R}_{\gamma}^{\alpha}$ is bounded from the anisotropic $B$-Morrey space to the anisotropic $B$-BMO space. Furthermore, we obtain some embedding relations between the space $L_{p,\lambda,\gamma}(\mathbb{R}^n_k)$ and the anisotropic $B$-Stummel-Kato class $S_{p,\alpha,\gamma}(\mathbb{R}^n_k)$.


Keywords and phrases: Anisotropic $B$-maximal operator, anisotropic $B$-Riesz potential, anisotropic $B$-Morrey space, Sobolev-Morrey type estimates, anisotropic $B$-Stummel-Kato class.

REFERENCES