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COMMUTATOR OF ANISOTROPIC RIESZ POTENTIAL IN ANISOTROPIC GENERALIZED MORREY SPACES

Abstract

In this paper it is proved that, if $b \in BMO_\sigma$, then commutator of the anisotropic Riesz potential operator $[b, I_{\alpha,\sigma}]$, $0 < \alpha < |\sigma|$ is bounded on anisotropic generalized Morrey spaces $M_{p,\varphi,\sigma}$, where $|\sigma| = \sum_{i=1}^{n} \sigma_i$ is the homogeneous dimension of $\mathbb{R}^n$. We find the conditions on the pair (φ_1, φ_2) which ensure the Spanne-Guliyev type boundedness of $[b, I_{\alpha,\sigma}]$ from the space $M_{p,\varphi_1,\sigma}$ to $M_{q,\varphi_2,\sigma}$, $1 < p < q < \infty$, $1/p - 1/q = \alpha/|\sigma|$. We also find the conditions on the φ which ensure the Adams-Guliyev type boundedness of $I_{\alpha,\sigma}$ from $M_{p,\varphi^{\frac{1}{p}},\sigma}$ to $M_{q,\varphi^{\frac{1}{q}},\sigma}$ for $1 < p < q < \infty$.