CHARACTERIZATIONS FOR THE FRACTIONAL INTEGRAL OPERATOR AND ITS COMMUTATORS IN GENERALIZED WEIGHTED MORREY SPACES ON CARNOT GROUPS

VAGIF S. GULIYEV* AND ISMAIL EKINCIOGLU

Abstract. In this paper, we shall give a characterization for the strong and weak type Spanne type boundedness of the fractional integral operator $I_{\alpha}, 0 < \alpha < Q$ on Carnot group $\mathbb{G}$ on generalized weighted Morrey spaces $M_{p,\varphi}(\mathbb{G}, w)$, respectively, where $Q$ is the homogeneous dimension of $\mathbb{G}$. Also we give a characterization for the Spanne type boundedness of the commutator operator $[b, I_{\alpha}]$ on generalized weighted Morrey spaces.

As applications of the properties of the fundamental solution of sub-Laplacian $\mathcal{L}$ on $\mathbb{G}$, we prove two Sobolev-Stein embedding theorems on generalized weighted Morrey spaces in the Carnot group setting.


Keywords and phrases: Carnot group, fractional integral operator, generalized weighted Morrey space, commutator, $BMO$.

REFERENCES


