GULIEV V.S., SAFAROV Z.V.

$B_{k,n}$-BESSEL POTENTIALS AND CERTAIN IMBEDDING THEOREMS IN $B_{k,n}$-SOBOLEV--LIOUVILLE SPACES

Abstract

In this work with help the generalized Fourier-Bessel shift operators ($B_{k,n}$-shift) investigated the Bessel potentials, generated by the Bessel differential operators $B_{k,n}=\left(B_{k+1},\ldots,B_n\right)$, *where* $B_j=\dfrac{\partial^2}{\partial x_j^2}+\dfrac{\gamma_j}{x_j}\dfrac{\partial}{\partial x_j}$, *($B_{k,n}$-Bessel potentials). The boundedness of $B_{k,n}$-Bessel potentials in spaces* $L_{p,\gamma_{k,n}}\left(R^n_{k,+}\right)=L_p\left(R^n_{k,+},x^{\gamma_{k,n}}_{k,n}dx\right),0\le k\le n-1$ *is proved. And also received certain imbedding theorems in $B_{k,n}$-Sobolev-Liouville spaces.*

For $p\in(1,\infty)$ the spaces of Bessel potentials introduced and studied by Aronszajn, Smith [1] and Calderon [2]. The $B_{n-1,n}$-Bessel potentials was investigated by Aliev, Gadjiev (see [3],[4]).