

**SOBOLEV TYPE SPACES ASSOCIATED
WITH THE JACOBI-DUNKL OPERATOR**

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Abstract

In this paper, we consider the Jacobi-Dunkl operator $\Lambda_{\alpha,\beta}$. We establish some results of Harmonic analysis related to this operator which permit to introduce Sobolev type spaces associated with this operator. Next, we define the Jacobi-Dunkl potential of order s , $H_{\alpha,\beta}^s$, we prove its continuity from a certain 'generalized' Schwartz space onto itself and we extend it to an appropriate space of distributions. Aid of this, we define a new Banach space $W_{\alpha,\beta}^{s,p}$, which can be seen as the L^p -space of all such Jacobi-Dunkl potentials. We give some properties including completeness and inclusion. Also, some applications are given for these spaces.

Mathematics Subject Classification: 46E35, 47B38

Key Words and Phrases: Jacobi-Dunkl operator, Jacobi function, Jacobi-Dunkl convolution, Sobolev space