

## Criterion of the $L^2$ -boundedness in Dunkl setting

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**Abstract.** The purpose of this paper is to introduce a new class of singular integral operators in the Dunkl setting which is associated with finite-reflection groups on the Euclidean space. The group structures induce two nonequivalent metrics: the Euclidean metric and the Dunkl metric, both of which are involved in the estimates of singular integrals, the heat and Poisson kernels. The main result is the  $T1$  theorem, the criterion of the  $L^2$ -boundedness in Dunkl setting. The key tools used in this paper are the Meyer-type commutation lemma and the almost-orthogonal estimates in the Dunkl setting.

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