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Positivity of Dunkl's intertwining operator

Dunkl operators are parametrized differential-difference operators which are associated with a finite reflection group on $\mathbb{R}^N$ and generalize the usual partial derivatives. They generate a commutative algebra which is - under weak assumptions - intertwined with the algebra of partial differential operators by a unique linear and homogeneous isomorphism on polynomials.

We report on the proof of a conjecture of Dunkl, which states that for non-negative parameter values, this intertwining operator allows a positive integral representation on certain algebras of analytic fuctions. Our result in particular implies that the generalized exponential kernel of the Dunkl transform is positive-definite.

Reference: M. Rösler, Positivity of Dunkl's intertwining operator, *Duke Math. J.* , to appear.