

An overview of Dunkl analysis

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The theory of special functions related to root systems has substantially developed over the past 25 years. Fundamental contributions are due to Charles Dunkl, Gert Heckman and Eric M. Opdam, Ian G. Macdonald and Ivan Cherednik, . . .

Our talk is meant to be expository. We shall focus on what is nowadays called Dunkl theory in the rational and trigonometric settings and specifically on its analytical aspects. In the first part, we shall review the historical background of this theory and its basic ingredients. In the second part, we shall discuss some results and open questions of harmonic analysis in this setting.

The following surveys and books are useful references in this far reaching subject.

References

- [1] M. Rösler, *Dunkl operators (theory and applications)*, in *Orthogonal polynomials and special functions (Leuven, 2002)*, E. Koelink & al. (eds.), Lect. Notes Math. 1817, Springer-Verlag, Berlin, 2003, 93–135.
- [2] E.M. Opdam, *Lecture notes on Dunkl operators for real and complex reflection groups*, Math. Soc. Japan Mem. 8, Math. Soc. Japan, Tokyo, 2000, 90 pages.
- [3] I.G. Macdonald, *Affine Hecke algebras and orthogonal polynomials*, Cambridge Tracts Math. 157, Cambridge Univ. Press, Cambridge, 2003, 175 pages.
- [4] I. Cherednik, *Double affine Hecke algebras*, London Math. Soc. Lect. Note Ser. 319, Cambridge Univ. Press, Cambridge, 2005, 434 pages.