

Quasi-Interpolation and Applications with Radial Basis Functions

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Abstract. *In this survey talk and approximation theory contribution, we shall address in some detail the available theory and methods of approximating functions and data very accurately in arbitrary dimensions using radial basis functions. The theory and the provided methods apply both to interpolation to data in Euclidean spaces and on spheres, and to quasi-interpolation from the same spaces of approximants, i.e., linear spaces spanned by shifts of radially symmetric basis functions. Examples of the radial basis functions employed include the particularly well-known and useful multiquadric radial basis function but also the famous thin-plate splines, including the original and/or the shifted versions.*

In this particular talk, most attention will be given to quasi-interpolation and its approximation properties in Euclidean spaces, and applications for a large range of different types of radial basis functions too, while in Janin Jgers's talk, the emphasis will be on interpolation and medical applications.