
Symmetric positive definite functions on various domains

Wolfgang zu Castell, *Neuherberg, Germany*

Positive definite functions play an important role in several fields of mathematics. From the approximation theory point of view they occur, among others, as basis functions for radial basis type methods. The key result in this context is Bochner's Theorem, characterizing positive definite functions on Euclidean spaces as Fourier transforms of non-negative measures.

We want to discuss positive definite functions with symmetries. Examples are radial basis functions on Euclidean spaces and zonal basis functions on the sphere. Setting the domain of these functions into a proper algebraic context allows to deduce several results in connection with interpolation by positive definite functions.