

Marcinkiewicz–Zygmund inequalities for scattered and random data on the q -sphere

The recovery of functions and estimating their integrals from finitely many samples is one of the central tasks in approximation theory. Marcinkiewicz–Zygmund inequalities provide answers to both the recovery and the quadrature aspect. In this talk, we put ourselves on the q -dimensional sphere \mathbb{S}^q , and investigate the validity of the MZ inequality

$$(1 - t)\|f\|_p^p \leq \sum_{j=1}^N w_j |f(\xi_j)|^p \leq (1 + t)\|f\|_p^p$$

for polynomials f of maximum degree n on the sphere \mathbb{S}^q , subject to weights w_j , and the number and distribution of the (deterministic or randomly chosen) sample points ξ_1, \dots, ξ_N on \mathbb{S}^q .