

ABSTRACT

Firstly, sharp reiteration theorems for the K -interpolation method in limiting cases are proved using two-sided estimates of the K -functional. As an application, sharp mapping properties of the Riesz potential are derived in a limiting case. Secondly, we prove optimal embeddings of the homogeneous Sobolev spaces built-up over function spaces in \mathbf{R}^n with K -monotone and rearrangement invariant norm into another rearrangement invariant function spaces. The investigation is based on pointwise and integral estimates of the rearrangement or the oscillation of the rearrangement of f in terms of the rearrangement of the derivatives of f .