

Abstract

In this dissertation we investigate the problem of optimal regularity of generalized Sobolev spaces $W^k E$ and Riesz potential operators. The regularity is measured by the generalized Hölder-Zygmund spaces CH . Here E is a rearrangement invariant quasi-normed function space on a bounded domain $\Omega \subset \mathbf{R}^n$, continuously embedded in $L^1(\Omega)$ and H is a quasi-normed space of functions defined on $(0, 1)$.