Abstract. This paper is concerned with the study of two functionals of variational type - the Riesz type generalized variation \( v_{p,\alpha}(f) \) \((1 < p < \infty, 0 \leq \alpha \leq 1 - 1/p)\) and the moduli of \( p \)-continuity \( \omega_{1-1/p}(f;\delta) \). These functionals generate scales of spaces connecting the class \( V_p \) of functions of bounded \( p \)-variation and the Sobolev space \( W^{1,p} \). Some limiting relations in these scales are proved. Sharp estimates of \( v_{p,\alpha}(f) \) in terms of \( \omega_{1-1/p}(f;\delta) \) are obtained.


Keywords and phrases: Functions of bounded \( p \)-variation, generalized variations, optimal constants, function spaces.

REFERENCES


