5005-A1-24   **Vladimir Temlyakov*** (`temlyak@math.sc.edu`), Dept. Math., USC, Columbia, SC 29208. *On Lebesgue type inequalities for greedy approximation.*

We study the efficiency of greedy algorithms with regard to redundant dictionaries in Hilbert spaces and with regard to bases in Banach spaces. We obtain upper estimates for the errors of the Orthogonal Greedy Algorithm in a Hilbert space in terms of the best m-term approximations. In a Banach space we compare efficiency of the Weak Thresholding Greedy Algorithm with the best m-term approximations. We call such estimates the Lebesgue type inequalities. In a Hilbert space we prove the Lebesgue type inequalities for dictionaries with special structure. We assume that the dictionary has a property of mutual incoherence (the coherence parameter of the dictionary is small). We develop a new technique that, in particular, allowed us to get rid of an extra factor $m^{1/2}$ in the Lebesgue type inequality for the Orthogonal Greedy Algorithm. These results are obtained in the recent joint paper with D.L. Donoho and M. Elad.

In a Banach space we prove the Lebesgue type inequalities for unconditional bases in terms of fundamental characteristics of bases. These results are obtained in a joint paper with A. Kamont. (Received May 05, 2007)