Results for the Weak Chebyshev Greedy Algorithm in Banach spaces

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We present some results concerning Lebesgue-type inequalities for the Weak Chebyshev Greedy Algorithm (WCGA), which is a generalization to Banach spaces of the Orthogonal Matching Pursue (OMP) algorithm for Hilbert spaces. The results are proved in the context of uniformly smooth Banach spaces.

We shall present a result that improves earlier bounds in V.N. Temlyakov (*Sparse approximation and recovery for greedy algorithms in Banach spaces*, Forum Math. Sigma 2 (12) (2014)). We apply this result to derive optimal bounds for the Multivariate Haar system in L^p with $1 < p \leq 2$, under the Littlewood-Paley norm, and also for the canonical basis in the mixed norm sequence spaces $\ell^p(\ell^q)$ (for all $1 < p, q < \infty$). Several open questions will also be stated.

This is joint work with S. Dilworth, G. Garrigós, D. Kutzarova, and V.N. Temlyakov that was started during the program *Approximation, Sampling and Compression in Data Science* held at the Isaac Newton Institute for Mathematical Sciences, Cambridge (UK), during the first semester of 2019.