## Highly conditional almost greedy bases of Banach spaces

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A basis of a Banach space is quasi-greedy if the Thresholding Greedy Algorithm (TGA) converges and almost greedy if the TGA selects essentially the best *m*-term projection onto the basis vectors. There exist quasi-greedy bases which are not unconditional. It is known that for a conditional quasi-greedy basis  $\mathcal{B}$  in a Banach space X, the associated sequence  $(k_m[\mathcal{B}])_{m=1}^{\infty}$  of its conditionality constants satisfies  $k_m[\mathcal{B}] = \mathcal{O}(\log m)$ , and in a superreflexive space (i.e., one admitting a uniformly convex norm) satisfies  $k_m[\mathcal{B}] = \mathcal{O}(\log m)^{1-\epsilon}$  for some  $\epsilon > 0$ . However, in the existing literature one finds very few instances of spaces possessing quasi-greedy bases with conditionality constants "as large as possible." In this talk we develop a construction introduced in [1] to exhibit new examples of both non-superreflexive classical Banach spaces having quasi-greedy bases  $\mathcal{B}$ with  $k_m[\mathcal{B}] = \mathcal{O}(\log m)$  and superreflexive spaces having, for every  $\epsilon > 0$ , quasi-greedy bases  $\mathcal{B}$  with  $k_m[\mathcal{B}] = \mathcal{O}(\log m)^{1-\epsilon}$ . Moreover, in most cases those bases will also be almost greedy. This is a report on joint work with F. Albiac. J. L. Ansorena, and Denka Kutzarova.

Joint work with: F. Albiac, J. L.Ansorena, Denka Kutzarova.

## References

 S. J. Dilworth, Nigel Kalton and Denka Kutzarova, On the existence of almost greedy bases in Banach Spaces, Studia Math. 159 (2003), 67–101.