

Antipodal sets in infinite dimensional Banach spaces

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Abstract. The following strengthening of the Elton-Odell theorem on the existence of $(1 + \varepsilon)$ -separated sequences in the unit sphere S_X of an infinite dimensional Banach space X is proved: There exist an infinite subset $S \subseteq S_X$ and a constant $\lambda > 1$ satisfying the property that for every $x, y \in S$, $x \neq y$ there exists $f \in X^*$ with $\|f\| \leq 1$ such that $\lambda \leq f(y) - f(x)$ and $f(x) \leq f(z) \leq f(y)$ for all $z \in S$.

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