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Title: A new characterization of q -convexifiable Banach spaces

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In this paper an atomic decomposition theorem for Banach-space-valued weak Hardy regular martingale space $wH_p(X)$ is given. As an application, we show that a Banach space X is q -convexifiable if and only if $\|S^{(q)}(f)\|_{wL_p} \leq C\|f^*\|_{wL_p}$ ($0 < p < \infty$, $2 \leq q < \infty$) for each X -valued regular martingale $f = (f_n)_{n \geq 0}$.

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