Haskell Rosenthal (Austin):

Can non-commutative L^p spaces be renormed to be stable?

Abstract: Let $\mathbf{N}$ be a von Neumann algebra. It is a theorem that for $1 \le p < \infty$, $p \ne 2$, $L^p(\mathbf{N})$ is (Krivine-Maurey) stable if (Y. Raynaud) and only if (M-Nahny) $\mathbf{N}$ is type I. We prove that if $\mathbf{R}$ is the hyperfinite type II_1 factor, $L^p(\mathbf{R})$ is isomorphic to a stable Banach space provided $p = 2^n$ or $3 \cdot 2^n$ for some $n = 1, 2, \ldots$ Complements to this result and connections with non-commutative probability will also be discussed. (Joint work with M. Junge).