

1123-52-117

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Universitaet Kiel, Mathematisches Seminar, Kiel, Germany, and **Nicole Tomczak-Jaegermann**
and **Elisabeth Werner**. *On the geometry of projective tensor products.*

We study the volume ratio of projective tensor products $\ell_p^n \otimes_\pi \ell_q^n \otimes_\pi \ell_r^n$ where $1 \leq p \leq q \leq r \leq \infty$. As a consequence of the Bourgain-Milman upper estimate on the volume ratio of Banach spaces by the cotype 2 constant, we obtain information on the cotype of $\ell_p \widehat{\otimes}_\pi \ell_q \widehat{\otimes}_\pi \ell_r$. Our results naturally generalize to k -fold projective tensor products $\ell_{p_1}^n \otimes_\pi \cdots \otimes_\pi \ell_{p_k}^n$. (Received August 21, 2016)