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DICHOTOMIES FOR LORENTZ SPACES

The talk is aimed at studying a size of the set of all n-tuples $(f_1, ..., f_n)$ from the product of n Lorentz spaces $L^{p_1,q_1} \times ... \times L^{p_n,q_1}$ such that their product $f_1 \cdots f_n$ is in another Lorentz space $L^{p,q}$.

It turns out that this set is either very small (meager or sigma-porous), or is equal to $L^{p_1,q_1} \times ... \times L^{p_n,q_1}$, and that this dichotomy depends on some properties of measure and numbers $p, p_1, ..., p_n$.

Presented results comes from a joined work with Szymon Głąb and Chan Woo Yang (which is in preparation).