VLADIMIR TROITSKY, University of Alberta, Edmonton, Alberta T6G 2G1
Norm closed algebraic ideals in $L(\ell_p \oplus \ell_q)$

It is well known that the only proper non-trivial norm-closed algebraic ideal in the algebra $\mathcal{L}(X)$ for $X = \ell_p$ $(1 \leq p < \infty)$ or $X = c_0$ is the ideal of compact operators. The next natural question is to describe all closed ideals of $\mathcal{L}(\ell_p \oplus \ell_q)$ for $1 \leq p, q < \infty$, $p \neq q$, or, equivalently, the closed ideals in $\mathcal{L}(\ell_p, \ell_q)$ for $p < q$. We show that for $1 < p < 2 < q < \infty$ there are at least four distinct proper closed ideals in $\mathcal{L}(\ell_p, \ell_q)$, including one that has not been studied before.

This is a joint work with B. Sari, Th. Schlumprecht and N. Tomczak-Jaegermann.