

SPACES OF COMPACT OPERATORS.

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ABSTRACT. It has been a long standing question to see if the only bounded linear projection from the space $L(X;Y)$ of continuous linear operators onto the space $K(X;Y)$ of compact linear operators is the trivial one (i.e., $L(X;Y) = K(X;Y)$). From one hand, it is already well known that if c_0 embeds in $K(X;Y)$, then $K(X;Y)$ is uncomplemented in $L(X;Y)$. On the other hand, in this talk we construct a Banach space X such that $K(X)$ is uncomplemented in $L(X)$ even if $K(X)$ does not contains c_0 . In the second part of this talk, we investigate the family of separable Banach spaces $(X;Y)$ such that $K(X;Y)$ is complemented in $L(X;Y)$ from a Descriptive Set Theory point of view. Moreover, we show how the space of compact operator can be involved even to construct space of continuous functions. Part of this talk is a jointly work with P. Motakis and D. Zisimopoulou.