

THE OPERATOR IDEAL OF WEAKLY COMPACTLY GENERATED OPERATORS

TOMASZ KANIA

ABSTRACT. We call a bounded linear operator acting between Banach spaces *weakly compactly generated* (WCG for short) if its range is contained in a weakly compactly generated subspace of its codomain. This notion simultaneously generalises being weakly compact and having separable range. It turns out that the class \mathcal{WCG} of weakly compactly generated operators forms a closed operator ideal in the sense of Pietsch. The ‘magnitude’ of $\mathcal{WCG}(C(K))$ inside the algebra of all operators on a $C(K)$ -space may be used as a naïve measure of the ‘similarity of the space K to an Eberlein compactum’. In this talk we shall present some of the results obtained jointly with T. Kochanek and, if time permits, we shall sketch the proof of a theorem which classifies all the closed in the algebra of operators on a non-separable $C(K)$ -space constructed under CH by P. Koszmider with the peculiar property that for every decomposition $C(K) = A \oplus B$ we have $A \cong C(K)$ and $B \cong c_0$ or *vice versa*.

DEPARTMENT OF MATHEMATICS AND STATISTICS, FYLDE COLLEGE, LANCASTER UNIVERSITY, LANCASTER LA1 4YF, UNITED KINGDOM
E-mail address: t.kania@lancaster.ac.uk