

BOUNDED APPROXIMATION PROPERTY OF PAIRS AND APPLICATIONS

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ABSTRACT. Let

$$0 \rightarrow Y \rightarrow X \rightarrow Z$$

be an exact sequence of Banach spaces, i.e. J -isomorphic embedding Q -surjection with $\ker Q = J(Y)$. Then (a) if X is an $(L)_\infty$ -space and Y has BAP=the bounded approximation property (resp. UAP=the uniform approximation property) then Z has BAP (resp. UAP); (b) if X is an $(L)_1$ -space and Z^* has BAP (resp. Z has UAP) then Y has BAP (resp. UAP).

Corollary: If G is a compact abelian group and S is a Sidon set in the dual group then the subspace of $L^1(G)$ of all functions orthogonal to S (resp. the subspace of $M(G)$ of all measures orthogonal to S) has UAP.

Joint work with T. Figiel and W. B. Johnson