

# On spaces with the b-property and b-weakly compact operators

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It is well-known that a Banach space can be mapped into its bidual in a canonical way. In a similar fashion a vector lattice  $E$  (Riesz space) can also be considered as a sublattice of its order bidual  $E''$ . In this context, a subset  $B$  of a vector lattice  $E$  is said to be b-order bounded if it is an order bounded subset of the order bidual  $E''$ . If each b-order bounded subset of a vector lattice  $E$  remains to be order bounded in  $E$  then the vector lattice  $E$  is said to have the b-property. A  $C(K)$  space, order duals have the b-property. On the other hand  $c_0$  does not have the b-property. This identification of certain subset of a vector lattice were explicitly defined and identified in Birol Altin's Ph.D.thesis in 2004. In the first part of of the talk ,we will give several characterization of vector lattices and Banach lattices with the b-property.

The second part of the talk is devoted to certain operators satisfying a compactness property. An operator  $T$  between a Banach lattice  $E$  and a Banach space  $X$  is called b-weakly compact if the image under  $T$  of each b-order bounded set of  $E$  is relatively weakly compact in  $X$ . We will give several characterization of b-weakly compact operators.