

**Marek Wójtcwicz**

***Isomorphic and isometric copies of  $\ell_\infty(\Gamma)$  in duals of Banach spaces and Banach lattices***

Comment.Math.Univ.Carolin. 47,3 (2006) 467-471.

**Abstract:** Let  $X$  and  $E$  be a Banach space and a real Banach lattice, respectively, and let  $\Gamma$  denote an infinite set. We give concise proofs of the following results: (1) The dual space  $X^*$  contains an isometric copy of  $c_0$  iff  $X^*$  contains an isometric copy of  $\ell_\infty$ , and (2)  $E^*$  contains a lattice-isometric copy of  $c_0(\Gamma)$  iff  $E^*$  contains a lattice-isometric copy of  $\ell_\infty(\Gamma)$ .

**Keywords:** isometry, embedding of  $\ell_\infty$ , dual space, Banach lattice

**AMS Subject Classification:** 46B04, 46B25, 47B65