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Complemented subspaces of p-adic second dual Banach spaces. (English) Zbl 0835.46066

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Summary: Let K be a non-Archimedean non-trivially valued complete field. In this paper, we study Banach spaces over K. Some of the main results are as follows:

(1) The Banach space $\mathrm{BC}((\ell^\infty)_1)$ has an orthocomplemented subspace linearly homeomorphic to c_0.

The Banach space $\mathrm{BC}((c_0)_1)$ has an orthocomplemented subspace linearly homeomorphic to ℓ^∞.

MSC:

46S10 Functional analysis over fields other than $\mathbb{R}$ or $\mathbb{C}$ or the quaternions; non-Archimedean functional analysis
46B25 Classical Banach spaces in the general theory

Keywords:

polar spaces; spherically complete; complemented subspaces; orthocomplemented subspace linearly homeomorphic to ℓ^∞