A DECOMPOSITION PROBLEM ON COMPLEX BANACH LATTICES

MEHMET SELÇUK TÜRER

ABSTRACT. Let $E \oplus F$ be a direct sum decomposition of a complex Banach lattice X. In [1], Garth Dales asked if the equation $||x + y|| = || \, |x| \vee |y| \, ||$ for all $x \in E$ and $y \in F$ implies that E and F are bands. We will present Kalton's solution to this problem. To do this, we will use hermitian operators, central operators and Krivine's calculus. In particular, we will show that if $f(s, t, \theta)$ is a real-valued integrable function of parameter $\theta \in [0, 1]$ and positively homogenuous and continuous function of parameters $s, t \in \mathbb{R}$, uniformly on θ, and if $F(s, t) = \int_0^1 f(s, t, \theta)d\theta$ for each $s, t \in \mathbb{R}$, then the Krivine's extension $\widetilde{F}$ of F is the Bochner integral of the Krivine's extension $\widetilde{f}$ of f.

REFERENCES

[1] H. G. Dales, *A problem on direct sum decompositions*, Positivity, 13 (2009) 330.

(MEHMET SELÇUK TÜRER) DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE, İSTANBUL KÜLTÜR UNIVERSITY, BAKIRKÖY 34156, İSTANBUL, TURKEY
  E-mail address: m.turer@iku.edu.tr

Key words and phrases. Banach lattice.