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Конференція внесена до Реєстру заходів безперервного професійного розвитку, які проводитимуться у 2023 році №5500074

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such as Cu or Ag, and B represents trivalent metals from Al to La. Delaphosite $CuFeO_2$ is a p-type semiconductor, the band gap of which can vary from 0.91 to 3.35 eV . $CuFeO_2$ has a relatively high electrical conductivity compared to other delaphosites, only $CuCrO_2$ is higher. $CuFeO_2$ can exhibit both the properties of multipheroism and spintronics. Investigation of magnetic and magnetoelectric properties of $CuFeO_2$ is intensively studied.

This paper presents the results of the study of the electrical properties and spectral photosensitivity of the $CuFeO_2$ / n-InSe heterojunction fabricated by spray pyrolysis of pyrite thin films on n-InSe substrates.

Conclusions. The spectral dependence of the quantum efficiency of the $CuFeO_2$ film irradiated from the $CuFeO_2$ / n-InSe heterostructure in the range of photon energies 1.2 ÷ 3.2 eV with a maximum at 2.3 eV has been studied. It is established that the long-wavelength edge of photosensitivity at hν = 1.2 eV is due to the edge of fundamental absorption in n-InSe. $CuFeO_2$ thin films are polycrystalline, as a result of which the intrinsic absorption edge is blurred due to partial absorption at the grain boundaries compared to monocrystalline materials. At energies $h\nu < E_g = 2.4$ eV) part of the radiation is absorbed at the grain boundaries. In this case, light that is able to be absorbed in n-InSe does not penetrate into the base region due to absorption in $CuFeO_2$.

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MORE ON THE EXTENSION OF LINEAR OPERATORS ON RIESZ SPACES

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Introduction. The classical Kantorovich theorem asserts the existence and uniqueness of a linear extension of a positive additive mapping, defined on the positive cone E^+ of a Riesz space E taking values in an Archimedean Riesz space F, to the entire space E. We prove that, if E has the principal projection property and f is Dedekind σ-complete then for every $e \in E^+$ every positive finitely additive f-valued measure defined on the Boolean algebra F_e of fragments of c has a unique positive linear extension to the ideal E_e of E generated by *e*. If, moreover, the measure is τ-continuous then the linear extension is order continuous.

Main result:

The aim of the study. Given a Riesz space E and e ∈ E, by F, we denote the Boolean algebra of all fragments of e, and by E_e, the ideal of E generated by e, that is,

$$F_e = \{x \in E: x \sqsubseteq e\} \text{ and } E_e = \{x \in E: (\exists\lambda > 0)\ |x| \le \lambda|e|\}.$$

Material and methods. Let B be a Boolean algebra and F be a Riesz space. A mapping ν: B → F+ is called a positive finitely additive vector measure if $\nu(x \sqcup y) = \nu(x) + \nu(y)$ for all disjoint x, y ∈ B. A positive finitely additive vector measure ν: B → F is called:

- τ-continuous provided for every nonempty upward directed set A ⊆ Bfor which sup A exists in B one has that sup ν(A) exists in F and ν(sup A) =sup ν(A);
- σ-continuous provided for every increasing sequence (x_n) in B for which $\sup_n x_n$ exists in B one has that $\sup_n\nu(x_n)$exists in F and $\nu(\sup_n x_n) = \sup_n\nu(x_n)$.

Theorem 1. Let *E* be a Riesz space with the principal projection property, 0 < e ∈ E and F be a Dedekind σ-complete Riesz space. Then for every positive finitely additive vector measure ν: Fe → F there exists a unique positive linear operator T: E_e → F, which extends ν, that is, $Tx = \nu(x)$ for all $x \in$ Ee. Moreover, if ν is τ-continuous (or σ-continuous) then T is order continuous (respectively, order σ-continuous).

Results. Example 1. Set $E = L_p := Lp[0, 1]$ with $0 \le p < \infty$, $F = L\infty$, $e = 1_{[0,1]}$ (the characteristic function of [0, 1]). Then $B_e = L_p$, and the measure ν: F_e → F defined by setting ν(x) = x for all $x \in F_e$ has no positive linear extension T: $L_p \to L_\infty$.

Conclusions. Indeed, if such an extension T existed then it would satisfy (1) in place of $\tilde{T}$, which implies T*x* = *x* for all e-step functions x. Then, Tx = x for all $x \in L_\infty$. It concludes that T is a linear bounded projection of L_p onto the non-closed linear subspace L_∞ of L_p, which contradicts the boundedness of T.