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Abstracts of Short Communications and Posters

Section:

8. Analysis

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A solution of the general Riesz-Radon problem for a Hausdorff space.

Let T be a Hausdorff space with families $\mathcal{G}, \mathcal{F}, \mathcal{C}$ and $\mathcal{B}$ of open, closed, compact and Borel sets. Let RM_0 be the set of all positive Radon measures $\mu : \mathcal{B} \to \overline{\mathbf{R}}$. Consider the algebra $\mathcal{A} \equiv \{\cup(G_i \cap F_i \mid i = 1, ..., n) \mid n \in \mathbf{N}, G_i \in \mathcal{G}, F_i \in \mathcal{F}\}$, the set $\mathcal{A}_c \equiv \{A \in \mathcal{A} \mid \exists C \in \mathcal{C}(A \subset C)\}$, the lattice linear spaceS_c of all functions $f : T \to \mathbf{R}$ such that supp$f \subset C \in \mathcal{C}$ and for ϵ there is a finite cover $(A_i \in \mathcal{A} \mid i \in I)$ of T with $\omega(f, A_i) < \epsilon$, and the set $(S_c^{\triangle})_+$ of all positive linear functions $\phi : S_c \to \mathbf{R}$ such that ϕ is pointwise σ-continuous and for $(A_n \in \mathcal{A}_c \mid n \in \mathbf{N}) \downarrow$ and ϵ there are m and $C \in \mathcal{C}$ with $C \subset \cap A_n$ and $\phi(\chi(A_m \setminus C)) < \epsilon$.Theorem. *There is a bijection* $V : (S_c^{\triangle})_+ \to RM_0$ *such that* $\phi f = \int f dV\phi$ *for* $f \in S_c$ *and* $\phi \in (S_c^{\triangle})_+$. Part of the result is joint work with A. Mikhalev. Reference: V. K. Zakharov, and A. V. Mikhalev, An integral representation for Radon measures on an arbitrary Hausdorff space, *Fund. i prikl. mat.* 3(1997), 1135-1172 (in Russia).