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## CONTENTS



**Abstract:** Some new inequalities of Hermite-Hadamard type for *GG*-convex functions defined on positive intervals are given. Applications for special means are also provided.



**Abstract:** We prove that if $A$ is a nonsingular $n \times n$ matrix and $\phi$ is smooth for $\mathbf{x} \neq \mathbf{0}$, integrable outside of a ball, and at the origin it has an asymptotic expansion of the type $\phi(\mathbf{x}) \sim \sum_{j=0}^{\infty} a_j\left(\frac{\mathbf{x}}{|\mathbf{x}|}\right) r^{\alpha_j}$ as $r = |\mathbf{x}| \longrightarrow 0$, where $a_j \in \mathcal{D}(\mathbb{S})$ and $\alpha_j \nearrow \infty$, $\alpha_i = -n$, then the hypersingular integral F.p. $\int_{\mathbb{R}^n} \phi(A\mathbf{x})\, d\mathbf{x}$ is given as

$$\text{F.p.} \int_{\mathbb{R}^n} \phi(A\mathbf{x})\, d\mathbf{x}$$
$$= \frac{1}{|\det A|}\text{F.p.} \int_{\mathbb{R}^n} \phi(\mathbf{x})\, d\mathbf{x} + \frac{1}{|\det A|} \int_{\mathbb{S}} a_i(\mathbf{w}) \ln\left|A^{-1}\mathbf{w}\right| d\sigma(\mathbf{w}).$$

We apply this and similar formulas to obtain the transformation rules for linear changes of variables in pseudofunctions, $\mathcal{P}f(|A\mathbf{x}|^{\beta})$, if $A$ is a nonsingular $n \times n$ matrix.



**Abstract:** First we give a very simple proof of the result: $X$ is a Hausdorff topological space, $C_b(X)$ all bounded continuous functions on $X$ and $\mathcal{L}$ a vector sub-lattice

of $C_b(X)$ which contains constant functions, separates the points of $X$, has sup-norm $\|.\|$-topology and is closed in that topology. Let $\mu : \mathcal{L} \longrightarrow R$ be a continuous linear mapping with the property that for any $\eta > 0$ there is a compact $C \subset X$ such that for any $f \in \mathcal{L},\ \|f\| \leq 1,\ f_{|C} = 0$, we have $|\mu(f)| \leq \eta$. Then $\mu$ can be uniquely extended to a tight measure on $X$. We extend it to the case when $\mu$ is $E$-valued for a Banach space $E$.



**Abstract:** The paper is devoted to the generalized absolute convergence of Walsh-Fourier series $\sum_m \gamma_m |\hat{f}(m)|^\beta$, where $0 < \beta < 2$ and $\{\gamma_m\}$ is a weighted sequence, and with its multidimensional analogs, for different function spaces.



**Abstract:** The tensor product of $L$ copies of a single vector, such as $p_{i_1} \cdots p_{i_L}$, can be analyzed in terms of angular momentum. When $p_{i_1} \cdots p_{i_L}$ is decomposed into a sum of components $(p_{i_1} \cdots p_{i_L})^L_\ell$, each characterized by angular momentum $\ell$, the components are in general complicated functions of the $p_i$ vectors, especially so for large $\ell$. We obtain a compact expression for $(p_{i_1} \cdots p_{i_L})^L_\ell$ explicitly in terms of the $p_i$ valid for all $L$ and $\ell$. We use this decomposition to perform three-dimensional Fourier transforms of functions like $p^n \hat{p}_{i_1} \cdots \hat{p}_{i_L}$ that are useful in describing particle interactions.



**Abstract:** In this paper, we establish some common fixed point results for a pair of self-mappings satisfying $g$-generalized weakly contractive conditions (governed by an implicit function) in a $b$-metric space endowed with an amorphous binary relation. Our results generalize relevant core results of the existing literature, which include several rational contractions as well as some weakly contractive conditions.



**Abstract:** Here we consider the approximation of functions by positive sublinear operators with applications to a large variety of Max-Product operators under mixed conformable fractional differentiability. These are examples of positive sublinear operators. Our study is based on our general results about positive sublinear operators. We produce Jackson type inequalities under mixed conformable related basic initial conditions. So our approach is quantitative by producing inequalities with their right hand sides involving the modulus of continuity of a high order mixed conformable fractional derivative of the function under approximation.

**Abstract:** Recently, in [12], authors proved some fixed point results for a new type of contraction, which is called a JS-quasi contraction. The purpose of this critical remark is to show that this kind of contractive mappings is in the fact the same with the well known contractive mappings of Banach, Kannan, Chatterjea and Ćirić type mappings.



**Abstract:** In this paper we introduced a class of multivalued mapping by combining a rational inequality with a Pata type contractive inequality and establish that such mappings have fixed point properties. The results are obtained in partially ordered metric spaces. The methodology is a combination of order theoretic method with the recently introduced method for Pata type contraction in fixed point theory. The main result is illustrated with examples. Its consequence in the single-valued case has discussed and illustrated.

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