On a Generalized n-inner Product and the Corresponding Cauchy-Schwarz Inequality

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Abstract: In this paper is defined an n-inner product of type $\langle \mathbf{a}_1, \ldots, \mathbf{a}_n | \mathbf{b}_1 \cdots \mathbf{b}_n \rangle$

where $\mathbf{a}_1, \ldots, \mathbf{a}_n, \ \mathbf{b}_1, \ldots, \mathbf{b}_n$ are vectors from a vector space V. This

definition generalizes the definition of Misiak of n-inner product [2], such that in special case if we consider only such pairs of sets $\{\mathbf{a}_1, \ldots, \mathbf{a}_1\}$ and

$\{\mathbf{b}_1 \cdots \mathbf{b}_n\}$ which differ for at most one vector, we obtain the definition of

Misiak. The Cauchy-Schwarz inequality for this general type of n-inner product is proved and some applications are given.

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