Georgievskii, D. V.
On the invariant correspondence between the symmetric second-rank tensors and the vector systems. (English. Russian original) Zbl 07394823

Summary: The possibilities of various representations of high-rank tensors in three-dimensional space using lower-rank tensors, in particular, the representations of second-rank tensors by vector fields, is discussed. The purpose of these representations is a convenient geometric interpretation of certain mechanical properties of objects described by high-rank tensors. An invariant correspondence between symmetric second-rank tensors in three-dimensional space and pairs of vectors from the same space is proposed. On the basis of this correspondence, a geometric interpretation of the action of an isotropic symmetric tensor function of a tensor argument is given.

MSC:
15A69 Multilinear algebra, tensor calculus
53A45 Differential geometric aspects in vector and tensor analysis

Keywords:
vector; symmetric second-rank tensor; invariant; deviator; spherical tensor; invariant correspondence

Full Text: DOI

References:

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