

# **Special World functions in Polynumber Finsler spaces and precise solutions of Einstein's equations linked with them**

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In the work the simplest types of analytical functions in 4-D Finsler space are considered by the example of 4-D Finsler space with Berwald-Moore's metric function, which is connected with algebra of commutative-associative Hypercomplex numbers. Suggested that Hypercomplex functions conjugated to analytical functions [1,2] could be considered as world functions, we construct fields of one-, two-, three-index tensors. The field with the two-index tensor for an arbitrary analytical function is found the field of a metric tensor of pseudo-Riemann space with the signature (+,-,-,-), that allow to associate it with a corresponding partial solution of Einstein's equations for gravitational field.

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2. Garas'ko G.I., World function.// Hypercomplex numbers in geometry and physics, 1, (5), 2006.

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## **Some algebras with ternary and quaternary operations, and their applications to analysis of the metric properties of Finsler spaces**

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The paper introduces certain specific ternary and quaternary operations in the multidimensional vector spaces. The interrelation is considered between the structural properties of these algebras and the Minkowski, Berwald-Moore metrics in the Finsler spaces; the examples are provided.

## **World function in Polynumbers Finsler spaces**

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In the work we would like to show that the World function can be considered as a connecting element between qualitatively different geometries with the same congruence of world lines (geodesics). If the space, where the World function is defined, is polynumber that, the hypothesis of analyticity for a vector field of generalized velocities along world lines leads to strong restrictions on a view of the World function.