ON CLASSIFICATION OF REDUCED EQUATIONS FOR THE EIKONAL EQUATION

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ABSTRACT

It is well known, that the symmetry reduction is one of the most powerful tools for investigation of partial differential equations.

We study a connection between structural properties of low-dimensional nonconjugate subalgebras of the Lie argebra of the generalized Poicaré group P(1,4) and results of symmetry reduction for some P(1,4)-invariant equations in the spaces $M(1,3) \times R(u)$ and $M(1,4) \times R(u)$. Here, M(1,3), M(1,4) are four- and five-dimensional Minkowski spaces, respectively; R(u) is the real number axis of the dependent variable u.

We plan to present some results concerning the relationship between the classification of three-dimensional nonconjugate subalgebras of the Lie algebra of the group P(1, 4) and symmetry reduction of the eikonal equation to ordinary differential equations.

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