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 algebra 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.

References


