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Pseudo H-type Lie algebras: research in progress

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Abstract

The talk is devoted to new results in the study of pseudo H-type algebras. Pseudo H-type Lie algebras is a natural generalisation of nowadays classical Heisenberg type algebras, introduced by A. Kaplan in 1980 in order to study hypoelliptic operators. The pseudo H-type Lie algebras admit rational structural constants, that lead to the existence of lattices on the corresponding Lie groups according to the Malcev theorem. The pseudo H-type Lie groups give rise to a chain of examples of nilmanifolds that are isospectral but non-diffeomorphic. We also discuss the isomorphic Lie algebras and the groups of automorphisms of different pseudo H-type algebras.

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