

Abstract

This talk provides a brief overview of Lie brackets on affine spaces. Lie affgebras have been studied in several works by Tomasz Brzeziński and his collaborators. It has been shown that every Lie affgebra is isomorphic to a Lie algebra equipped with an additional element and a specific generalized derivation. Moreover, a close relationship between Lie affgebras and Lie algebras has been established.

A similar approach has been developed for Leibniz algebras. The notion of Leibniz affgebras was investigated by Tomasz Brzeziński, Krzysztof Radziszewski, Brais Ramos Pérez, and it was shown that every Leibniz algebra can be extended to a family of Leibniz affgebras.

In this talk, we present Lie affgebra structures on three-dimensional Lie algebras and establish several properties of Lie affgebras whose underlying Lie algebra is solvable or perfect.