Isomorphism classes of 10-dimensional filiform Leibniz algebras

ABSTRACT

This paper implements Rakhimov-Bekbaev approach to present a complete list of isomorphism classes of a subclass of complex filiform Leibniz algebras obtained from naturally graded non-Lie filiform Leibniz algebra. This class is split into two subclasses. In this paper we shall consider the second class which is denoted by SLb n in dimension n. The isomorphism criteria in terms of invariant functions for SLb 10 are presented. We represent SLb10as a union of subsets and show that some of these subsets are represented as union of infinitely many orbits (a set of isomorphic to each other algebras) while others are represented as just a single orbit. In former case we give invariant functions to distinguish the orbits, while for the latter case the representatives of the single orbits are provided. As a result, we give the list of isomorphism classes with the table of multiplications.