

SOME CONJECTURES ON COMPLEX FINITE-DIMENSIONAL SOLVABLE LEIBNIZ ALGEBRAS

Bakhrom Omirov

*National University of Uzbekistan, Tashkent, Uzbekistan
omriov@mail.ru*

A Leibniz algebra is a non-commutative analogue of a Lie algebra, in the sense that adding antisymmetry to the Leibniz bracket leads to coincidence of fundamental identity (the Leibniz identity) with the Jacobi identity. Therefore, a Lie algebra is a particular case of a Leibniz algebra. Leibniz algebras were introduced by J.-L. Loday in 1993 and since then the study of Leibniz algebras has been carried on intensively. Investigation of Leibniz algebras shows that classical results on Cartan subalgebras, Levi's decomposition, Engel's and Lie's theorems, properties of solvable algebras with given nilradical and others from theory of Lie algebras have been extended to Leibniz algebras case. From the Leibniz identity it follows that a Leibniz algebra preserves a unique property of Lie algebras: an operator of right multiplication on element of an algebra is a derivation.

An analogue of Levi's theorem recently was proved by D. Barnes. From which the study of finite-dimensional Leibniz algebras is focused to solvable algebras. The procedure how to define a solvable Lie algebra by means of a fixed nilradical was presented by Mubarakzyanov. The method of the description of a solvable Leibniz algebra with a given nilradical is an extension of the procedure of Mubarakzyanov.

In this talk several conjectures on finite-dimensional solvable Leibniz algebras with a given nilradical and with some conditions on complementary subspace will be proposed.