Abstract

In this talk I will introduce a new type of algebras, called cyclic Leibniz algebras, which generalize Leibniz algebras. One goal is the construction of a new bialgebra theory for Leibniz algebras having different properties then the existing approaches.

Cyclic Leibniz algebras can be obtained either by considering average operators on Lie algebras or Leibniz algebras with a nondegenerate bilinear form which is compatible with the Leibniz multiplication in a certain way. This allows the construction of Manin triple and bialgebras for cyclic Leibniz algebras. Lie bialgebras are a example of this new type of bialgebras.

We also study some operadic properties and define cyclic Zinbiel algebras, which are given by the Koszul dual operad.