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Section:

2. Algebra

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Nilpotent Leibniz algebras of low dimension.

A Leibniz algebra L over a field F is an F-module equipped with a bilinear map called backet: $[,] : L \times L \to L$, satisfying the Leibniz identity: $[x,[y,z]] = [[x,y],z] - [[x,z],y]$. For Leibniz algebras the notions of right nilpotency and nilpotency coincide and mean that $L^{<n>} = \{0\}$ for some natural n, where $L^{<1>} = L, L^{<n+1>} = [L^{<n>}, L]$. We give a description of 3 dimensional nilpotent Leibniz algebras,4-dimensional nilpotent Leibniz algebras with 1-dimensional right annihilator $Z(L) = \{x \in L : [y,x] = 0,$ for all $y \in L\}$ and some other classes of low dimensional nilpotent Leibniz algebras over the field with zero characteristic. Part of these results is joint work with Omirov. References: J. L. Loday, T. Pirashkili. Universal anveloping algebras of Leibniz algebras and (co)homology, Math. Ann. 296 (1993), 139-158.