MR3007212 17A32 17A36 17A60
Rakhimov, Isamiddin S. [**Rakhimov, Isamiddin Sattarovich**] (MAL-UPMFS);
Al-Nashri, Al-Hossain [**Al-Hossain, Al-Nashri**] (MAL-UPMFS)
On derivations of some classes of Leibniz algebras. (English summary)
J. Gen. Lie Theory Appl. **6** (2012), *Art. ID G*120501, 12 *pp.*

For a Leibniz algebra, the authors define recursively the sequence

$$L^1 = L, \quad L^{k+1} = [L^k, L].$$

L is said to be nilpotent if there exists $s \in \mathbb{N}$ such that $L^s = 0$.

An n-dimensional Leibniz algebra L is said to be filiform if $\dim(L^i) = n - i$, $2 \leq i \leq n$.

From [S. A. Ayupov and B. A. Omirov, Sibirsk. Mat. Zh. **42** (2001), no. 1, 18–29, i; MR1830788; M. Vergne, Bull. Soc. Math. France **98** (1970), 81–116; MR0289609; I. S. Rakhimov and U. D. Bekbaev, Comm. Algebra **38** (2010), no. 12, 4705–4738; MR2805139] it is well known that:

1. Any complex n-dimensional naturally graded filiform Leibniz algebra is isomorphic to one of the pairwise non-isomorphic algebras NGF_1, NGF_2, and NGF_3 (the tables of multiplication are recalled in Theorem 1 of the present paper).

2. Any complex n-dimensional filiform Leibniz algebra L, obtained from a naturally graded non-Lie filiform Leibniz algebra, admits a basis such that the multiplication table of L has the form FLb_n or SLb_n (the tables of multiplication are recalled in Theorem 2 of the present paper).

The present paper describes the derivations of complex n-dimensional graded filiform Leibniz algebras showing that

- $\dim \mathrm{Der}(\mathrm{NGF}_i) = n + i$, $i = 1, 2$;
- $\dim \mathrm{Der}(\mathrm{NGF}_3) = 2n - 1$;
- $n - 1 \leq \dim \mathrm{Der}(L) \leq n + 1$, if $L \in \mathrm{FLb}_n$;
- $n - 1 \leq \dim \mathrm{Der}(L) \leq n + 2$, if $L \in \mathrm{SLb}_n$.

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