

POLYNOMIAL IDENTITIES FOR A PARAMETRIC WEYL ALGEBRA AND FOR SUBSPACES OF WEYL ALGEBRA

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ABSTRACT. In 2015 Benkart, Lopes and Ondrus introduced and studied in a series of papers the infinite-dimensional unital associative algebra A_h generated by elements x, y , which satisfy the relation $yx - xy = h$ for some $0 \neq h \in F[x]$ (See [3]), i.e.,

$$A_h(F) = Fxy/\text{id}\{yx - xy - h\}.$$

We, in a joint work with professor Artem Lopatin from the State University of Campinas, generalize this construction to $A_h(B)$ by working over the fixed F -algebra B instead of F . We describe the polynomial identities for $A_h(B)$ over the infinite field F in case $h \in B[x]$ satisfies certain restrictions (See [1]).

We also investigate the standard polynomial identities and minimal identities for certain subspaces of A_h over an infinite field of arbitrary characteristic (See [2]).

REFERENCES

- [1] A. Lopatin, C.A. Rodriguez Palma, *Identities for a parametric Weyl algebra over a ring*, J. Algebra, **595** (2022), 279–296.
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- [3] G. Benkart, S.A. Lopes, M. Ondrus, *A parametric family of subalgebras of the Weyl algebra I. Structure and automorphisms*, Transactions of the American Mathematical Society **367** (2015), no. 3, 1993–2021.

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