

**Oh, Sei-Qwon**

**Catenarity in a class of iterated skew polynomial rings.** (English) Zbl 0872.16018

*Commun. Algebra* 25, No. 1, 37-49 (1997).

Certain iterated skew polynomial algebras of a type introduced by *D. A. Jordan* [e.g., *J. Algebra* 174, No. 1, 267-281 (1995; [Zbl 0833.16025](#))] are studied. For a large subclass, the author establishes finiteness of the Gelfand-Kirillov dimension, Auslander-regularity, the Cohen-Macaulay property, and normal separation. It then follows from a modification of Gabber's work by *T. H. Lenagan* and the reviewer [*J. Pure Appl. Algebra* 111, No. 1-3, 123-142 (1996; [Zbl 0864.16018](#))] that the prime spectra of the algebras in this class are catenary, and that Tauvel's height formula holds. Applications include the one-parameter coordinate rings  $\mathcal{O}_q(\mathfrak{sp}k^{2n})$  and  $\mathcal{O}_q(\mathfrak{ok}^n)$  of quantum symplectic and Euclidean spaces when  $q$  is not a root of unity, and the multiparameter quantized Weyl algebras  $A_n^{Q,\Gamma}(k)$  when the entries of the vector  $Q \in (k^\times)^n$  are not roots of unity. The results for  $\mathcal{O}_q(\mathfrak{sp}k^{2n})$  and  $\mathcal{O}_q(\mathfrak{ok}^n)$  are new, while that for  $A_n^{Q,\Gamma}(k)$  recovers a result of Lenagan and the reviewer [op. cit.] with less technical computations.

Reviewer: [K.R.Goodearl](#) (Santa Barbara)

**MSC:**

- [16S36](#) Ordinary and skew polynomial rings and semigroup rings
- [16D25](#) Ideals in associative algebras
- [16P90](#) Growth rate, Gelfand-Kirillov dimension
- [16P40](#) Noetherian rings and modules (associative rings and algebras)
- [17B37](#) Quantum groups (quantized enveloping algebras) and related deformations

Cited in **4** Reviews  
Cited in **10** Documents

**Keywords:**

catenarity; Tauvel's height formula; quantum symplectic spaces; quantum Euclidean spaces; quantized Weyl algebras; iterated skew polynomial algebras; Gelfand-Kirillov dimension; Auslander regularity; Cohen-Macaulay property; normal separation; prime spectra; one-parameter coordinate rings

**Full Text:** [DOI](#)

**References:**

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