Farshad, Negin; Safarisabet, Shaaban Ali; Moussavi, Ahmad

Amalgamated rings with clean-type properties. (English) Zbl 07512850

Hacet. J. Math. Stat. 50, No. 5, 1358-1370 (2021)

Summary: Let $f : A \to B$ be a ring homomorphism and K be an ideal of B. Many variations of the notions of clean and nil-clean rings have been studied by a variety of authors. We investigate strongly π-regular and clean-like properties of the amalgamation ring $A \bowtie^f K$ of A with B along K with respect to f.

MSC:

16N40 Nil and nilpotent radicals, sets, ideals, associative rings
16U40 Idempotent elements (associative rings and algebras)
16S99 Associative rings and algebras arising under various constructions

Keywords:

amalgamation ring; nil-clean ring; J-clean ring; semiclean ring; semiregular ring; exchange ring

Full Text: DOI

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Ahmadi, M.; **Moussavi, A.**

Generalized Rickart $*$-rings. (English. Russian original) Zbl 07436433

Sib. Math. J. 62, No. 6, 963-980 (2021); translation from Sib. Mat. Zh. 62, No. 2, 1191-1214 (2021).

A ring R with an involution $*$ is a generalized Rickart $*$-ring if for every $x \in R$ there is a positive integer n such that the right annihilator of x^n is generated by a projection.

The authors study various properties of generalized Rickart $*$-rings and their relations with generalized Baer $*$-rings and other related rings (for example, generalized Baer and generalized Rickart rings). They present various examples and non-examples of generalized Rickart $*$-rings (for example, generalized Rickart $*$-rings which are neither Rickart $*$-rings nor generalized Baer $*$-rings).

Reviewer: Lia Vas (Philadelphia)

MSC:

16W10 Rings with involution; Lie, Jordan and other nonassociative structures
16W99 Associative rings and algebras with additional structure
16S99 Associative rings and algebras arising under various constructions

Keywords:

Rickart $*$-ring; generalized Rickart $*$-ring; generalized p.p. ring; generalized Baer $*$-ring; Banach $*$-algebra

Full Text: DOI

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Shahidikia, Ali; **Javadi, Hamid Haj Seyyed**; **Moussavi, Ahmad**

π-Baer $*$-rings. (English) Zbl 07426081

Int. Electron. J. Algebra 30, 231-242 (2021)

Summary: A $*$-ring R is called a π-Baer $*$-ring, if for any projection invariant left ideal Y of R, the right annihilator of Y is generated, as a right ideal, by a projection. In this note, we study some properties of such $*$-rings. We indicate interrelationships between the π-Baer $*$-rings and related classes of rings such as π-Baer rings, Baer $*$-rings, and quasi-Baer $*$-rings. We announce several results on π-Baer $*$-rings. We show that this notion is well-behaved with respect to polynomial extensions and full matrix rings. Examples are provided to explain and delimit our results.

MSC:

16D25 Ideals in associative algebras
16D40 Free, projective, and flat modules and ideals in associative algebras
16D70 Structure and classification for modules, bimodules and ideals (except as in 16Gxx), direct sum decomposition and cancellation in associative algebras)

Keywords:

π-Baer ring; π-Baer $*$-ring; quasi-Baer $*$-ring; Baer ring; Baer $*$-ring

Full Text: DOI

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Mehralinejadian, S.; Moussavi, A.; Sahebi, Sh.

Skew inverse Laurent series extensions of weakly principally quasi Baer rings. (English) Zbl 07412130

J. Algebra Appl. 20, No. 10, Article ID 2150191, 18 p. (2021)

MSC:

16D15 1-sided ideals (MSC2000)
16D40 Free, projective, and flat modules and ideals in associative algebras
16D70 Structure and classification for modules, bimodules and ideals (except as in 16Gxx), direct sum decomposition and cancellation in associative algebras)

Keywords:

skew inverse Laurent series ring; skew inverse power series ring; weakly p.q.-Baer ring; APP ring; AIP ring; s-unital ideal

Full Text: DOI

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Majidinya, Ali; Moussavi, Ahmad

Weakly principally quasi-Baer skew generalized power series rings. (English) Zbl 1478.16046

Appl. Algebra Eng. Commun. Comput. 32, No. 3, 409-425 (2021).

Summary: Let $(S, \leq)$ be a strictly totally ordered monoid and R an (S, ω)-weakly rigid ring, where $\omega : S \to \mathrm{End}(R)$ is a monoid homomorphism. In this paper, we study the weakly p.q.-Bear property of the skew generalized power series ring $R[[S, \omega]]$. As a consequence, the weakly p.q.-Baer property of the skew power series ring $R[[x; \alpha]]$ and the skew Laurent power series ring $R[[x, x^{-1}; \alpha]]$ are determined, where α is a ring endomorphism of R.

MSC:

16W60 Valuations, completions, formal power series and related constructions (associative rings and algebras)
16S35 Twisted and skew group rings, crossed products
16S36 Ordinary and skew polynomial rings and semigroup rings

Keywords:

skew generalized power series ring; weakly principally quasi-Baer ring; weakly rigid ring; s-unital ideal

Full Text: DOI

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Mohammadi, Rasul; Moussavi, Ahmad; Zahiri, Masoome

Modules with annihilation property. (English) Zbl 07365658

J. Algebra Appl. 20, No. 7, Article ID 2150126, 15 p. (2021)

The main purpose of the paper under review is to investigate the "Property (A)" for right modules over unital associative rings. By definition, a right R-module M has Property (A) if each finitely generated ideal I with $I \subseteq Z(M_R)$ has nonzero annihilator in M_R. For example, in the paper under review, the authors show that over any commutative ring, a right R-module M_R has Property (A) if and only if its injective envelope is $E(M)_R$ has Property (A). In addition to that, they prove that if R is a commutative ring, then every right R-module M_R with finite uniform dimension, has Property (A). As an application of Property (A), they show that if M_R is a symmetric R-module and G a strictly totally ordered monoid, then the right $R[G]$-module $M[G]_{R[G]}$ is primal if and only if the right$R$-module M_R is primal and has Property (A). Recall that a right R-module M_R is said to be primal (introduced by *J. Dauns* [Commun. Algebra 25, No. 8, 2409–2435 (1997; Zbl 0882.16001)]) if $Z(M_R)$ is ideal of R. The concept of Property (A) for rings was introduced by *Y. Quentel* [Bull. Soc. Math. Fr. 99, 265–272 (1971; Zbl 0215.36803)] though calling it "Condition (C)". Apparently, *G. W. Hinkle* and *J. A. Huckaba* used the term "Property (A)" in [J. Reine Angew. Math. 292, 25–36 (1977; Zbl 0348.13011)] for the first time. Later, the Property (A) was investigated in other papers like [*T. G. Lucas*, Commun. Algebra 14, 557–580 (1986; Zbl 0586.13004); *C. Y. Hong* et al., J. Algebra 315, No. 2, 612–628 (2007; Zbl 1156.16001); *P. Nasehpour*, Kyungpook Math. J. 51, No. 1, 37–42 (2011; Zbl 1218.13005)]. Note that by Theorem 82 in [*I. Kaplansky*, Commutative rings. 2nd revised ed. Chicago-London: The University of Chicago Press (1974; Zbl 0296.13001)], any Noetherian commutative ring with identity has Property (A).

Reviewer: Peyman Nasehpour (Golpayegan)

MSC:

16D10 General module theory in associative algebras
16D40 Free, projective, and flat modules and ideals in associative algebras
16D70 Structure and classification for modules, bimodules and ideals (except as in 16Gxx), direct sum decomposition and cancellation in associative algebras)

Keywords:

rings with property (A); local ring; strictly totally ordered monoid

Full Text: DOI

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Mohammadi, Rasul; Moussavi, Ahmad; Zahiri, Masoome

A characterization of extending generalized triangular matrix rings. (English) Zbl 07347696

J. Algebra Appl. 20, No. 2, Article ID 2150016, 14 p. (2021)

MSC:

16S50 Endomorphism rings; matrix rings
16D70 Structure and classification for modules, bimodules and ideals (except as in 16Gxx), direct sum decomposition and cancellation in associative algebras)
16D50 Injective modules, self-injective associative rings

Keywords:

right extending rings; generalized triangular matrix rings; semicentral idempotents

Full Text: DOI

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Moussavi, Ahmad; **Zahiri, Masoome**; **Mohammadi, Rasul**

Jordan automorphism of Morita context algebras. (English) Zbl 1467.16027

Bull. Malays. Math. Sci. Soc. (2) 44, No. 2, 1079-1092 (2021).

Summary: The aim of this article is to determine entirely the Jordan automorphisms of generalized matrix rings of Morita contexts. Necessary and sufficient conditions are obtained for an $\mathcal{R}$-linear map on a general Morita context to be a Jordan homomorphism. Moreover, some conditions are studied, under which, any Jordan automorphism of a general Morita context is either an automorphism or an anti-automorphism.

MSC:

16S50 Endomorphism rings; matrix rings
16W20 Automorphisms and endomorphisms
16W25 Derivations, actions of Lie algebras

Keywords:

Jordan automorphism; Morita context algebra

Full Text: DOI

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Zahiri, M.; Moussavi, A.; Mohammadi, R.
Triangular matrix rings of selfinjective rings. (English) Zbl 07328955
Commun. Algebra 49, No. 4, 1553-1559 (2021)

Let R be a ring, and let $n \geq 2$ be an integer. The aim of the paper is to show that R is right self-injective if and only if the upper triangular $n \times n$ matrix ring $T_n(R)$ is right generalized extending, i.e., for any right ideal N of $T_n(R)$ there exists a right ideal D, which is a direct summand of $T_n(R)$ (as a right $T_n(R)$-module), such that $N \subset D$ and D/N is a singular right $T_n(R)$-module. This answers a question in [*E. Akalan* et al., Commun. Algebra 40, No. 3, 1069–1085 (2012; Zbl 1248.16005)].

Reviewer: Sorin Dascalescu (Bucureşti)

MSC:

16S50 Endomorphism rings; matrix rings
16D50 Injective modules, self-injective associative rings

Keywords:

generalized extending rings; right self-injective rings; upper triangular matrix rings

Full Text: DOI

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Ahmadi, Morteza; Moussavi, Ahmad
Involutive triangular matrix algebras. (English) Zbl 07421916
Hacet. J. Math. Stat. 49, No. 5, 1798-1803 (2020)

Summary: In this paper we provide new examples of Banach $*$-subalgebras of the matrix algebra $\mathbf{M}_n(\mathscr{A})$ over a commutative unital C^*-algebra $\mathscr{A}$. For any involutive algebra, we define two involutions on the triangular matrix extensions. We prove that the triangular matrix algebras over any commutative unital C^*-algebra are Banach $*$-algebras and that the primitive ideals of these algebras and some of their Banach $*$-subalgebras are all maximal.

MSC:

46-XX Functional analysis
16-XX Associative rings and algebras

Keywords:

primitive ideal; maximal ideal; Banach $*$-algebra; C^*-algebra

Full Text: DOI

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1 O.M. Di Vincenzo, P. Koshlukov and R. La Scala, Involutions for upper triangular matrix algebras, Adv. in Appl. Math. 37, 541-568, 2006. · Zbl 1116.16029

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Amirzadeh Dana, P.; **Moussavi, A.**

Modules in which the annihilator of a fully invariant submodule is pure. (English)

Zbl 1462.16007

Commun. Algebra 48, No. 11, 4875-4888 (2020).

Summary: A ring R is called left AIP if R modulo the left annihilator of any ideal is flat. In this paper, we characterize a module M_R for which the endomorphism ring $\mathrm{End}_R(M)$ is left AIP. We say a module M_R is endo-AIP (resp. endo-APP) if M has the property that "the left annihilator in $\mathrm{End}_R(M)$ of every fully invariant submodule of M (resp. $\mathrm{End}_R(M)m$, for every $m \in M$) is pure as a left ideal in $\mathrm{End}_R(M)$". The notion of endo-AIP (resp. endo-APP) modules generalizes the notion of Rickart and p.q.-Baer modules to a much larger class of modules. It is shown that every direct summand of an endo-AIP (resp. endo-APP) module inherits the property and that every projective module over a left AIP (resp. APP)-ring is an endo-AIP (resp. endo-APP) module.

MSC:

16D80 Other classes of modules and ideals in associative algebras
16D70 Structure and classification for modules, bimodules and ideals (except as in 16Gxx), direct sum decomposition and cancellation in associative algebras)
16S50 Endomorphism rings; matrix rings

Keywords:

endo-AIP module; endo-APP module; left AIP ring; left APP-ring; pure ideal; Rickart and p.q.-Baer modules; s-unital ideal; endomorphism ring

Full Text: DOI

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Ahmadi, M.; Moussavi, A.
Rings whose singular ideals are nil. (English) Zbl 1462.16018
Commun. Algebra 48, No. 11, 4796-4808 (2020).

Summary: It is well known that when a ring R satisfies ACC on right annihilators of elements, then the right singular ideal of R is nil, in this case, we say R is right nil-singular. Many classes of rings whose singular ideals are nil, but do not satisfy the ACC on right annihilators, are presented and the behavior of them is investigated with respect to various constructions, in particular skew polynomial rings and triangular matrix rings. The class of right nil-singular rings contains π-regular rings and is closed under direct sums. Examples are provided to explain and delimit our results.

MSC:

16N40 Nil and nilpotent radicals, sets, ideals, associative rings
16D25 Ideals in associative algebras
16S36 Ordinary and skew polynomial rings and semigroup rings

Keywords:

nil-singular ring; nonsingular ring; π-regular ring; singular ideal; skew Laurent polynomial ring; skew polynomial ring

Full Text: DOI

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Paykan, Kamal; Moussavi, Ahmad

Some characterizations of 2-primal skew generalized power series rings. (English)

Zbl 1446.16030

Commun. Algebra 48, No. 6, 2346-2357 (2020).

The skew generalized power series ring $R[\![S,\omega]\!]$ is the ring consisting of all functions from a strictly ordered monoid S to a ring R whose support contains neither infinite descending chains nor infinite antichains, with pointwise addition, and with multiplication given by a convolution twisted by the action ω of the monoid S on the ring R.

The prime radical of a ring T and the set of all nilpotent elements in T are denoted by $P(T)$ and $\mathrm{nil}(T)$, respectively. Recall that $P(T)$ is the set of all strongly nilpotent elements of T. The ring T is called 2-primal if $P(T)=\mathrm{nil}(T)$.

The goal of this paper is to provide necessary and sufficient conditions for $R[\![S,\omega]\!]$ to be 2-primal (Theorem 3.6 and 3.16). In particular, the authors show that when S is a strictly ordered artinian narrow unique product monoid, $\omega : S \to \mathrm{End}(R)$ is a monoid homomorphism, R is S-compatible and $P(R)$ is a nilpotent ideal, the ring $R[\![S,\omega]\!]$ is 2-primal if and only if R is.

Reviewer: Adam Chapman (Tel Hai)

MSC:

16S99	Associative rings and algebras arising under various constructions
16W60	Valuations, completions, formal power series and related constructions (associative rings and algebras)
16S36	Ordinary and skew polynomial rings and semigroup rings
16N40	Nil and nilpotent radicals, sets, ideals, associative rings

Cited in **4** Documents

Keywords:

skew generalized power series ring; 2-primal; minimal prime ideal; (S,w)-prime; prime radical

Full Text: DOI

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Ahmadi, Morteza; **Golestani, Nasser**; **Moussavi, Ahmad**
Generalized quasi-Baer $*$-rings and Banach $*$-algebras. (English) Zbl 1439.16039
Commun. Algebra 48, No. 5, 2207-2247 (2020).

A ring with involution is a quasi-Baer $*$-ring (respectively principally quasi-Baer $*$-ring) if the right annihilator of every ideal (respectively principal ideal) is generated by a projection. The authors generalize these concepts by defining a $*$-ring R to be a generalized (principally) quasi-Baer $*$-ring if for any (principal) ideal I of R, there is a positive integer n such that the right annihilator of I^n is generated by a projection. In the introduction of the paper, the authors expand on the motivation for these generalizations from perspectives of both algebra and operator theory.

The authors prove numerous properties of the newly introduced classes of rings. They supplement their work by many examples illustrating the difference between the classes they consider and some other generalizations of Baer-type and Rickart-type properties. After this, the authors consider matrix rings, group rings and polynomial extensions and their various subrings and study the conditions for these $*$-rings to be generalized quasi-Baer. They also provide sheaf representations of the classes of $*$-rings under consideration.

The authors show that the classes of quasi-Baer $*$-rings and generalized quasi-Baer $*$-rings coincide for pre-C^*-algebras while they are different for Banach $*$-algebras. For a locally compact abelian group G, the authors show that the algebras $L^1(G)$ and $C^*(G)$ are generalized quasi-Baer $*$-rings if and only if G is finite. They provide a similar characterization also for a Leavitt path algebra $L_K(E)$ of a finite directed graph E over a field K.

Reviewer: Lia Vas (Philadelphia)

MSC:

16W10	Rings with involution; Lie, Jordan and other nonassociative structures
16D25	Ideals in associative algebras
16S10	Associative rings determined by universal properties (free algebras, coproducts, adjunction of inverses, etc.)
46L05	General theory of C^*-algebras
46K05	General theory of topological algebras with involution

Cited in **3** Documents

Keywords:

Baer $*$-ring; quasi-Baer $*$-ring; generalized quasi-Baer ring; generalized quasi-Baer $*$-ring; primary ring; Banach $*$-algebra; C^*-algebra; Leavitt path algebra

Full Text: DOI

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Dana, P. Amirzadeh; Moussavi, A.

Polynomial extensions of modules with the quasi-Baer property. (English) Zbl 1475.16011

J. Algebra 542, 230-248 (2020).

All rings R in this paper have identity and all modules M_R are right and unital. For an arbitrary nonempty set of not necessarily commuting indeterminates X, let $R[X]$, $R[[X]]$ (respectively, $M[X]$ and $M[[X]]$) be polynomial ring, formal polynomial ring (modules, respectively, extended form the module M). When $X = \{x\}$, $R[X]$ is denoted as $R[x]$ as usual. Let $S =: \mathrm{End}_R(M)$ be the endomorphism ring of M_R. Recall that a ring R is (quasi-)Baer if the right annihilator of every nonempty subset (resp. right ideal) of R is generated (as a right ideal) by an idempotent of R. In the first section, the authors give a detailed survey of studies on the quasi-Baer property of rings and modules and other closely related topics. In the second section, the authors first show that $\mathrm{End}_{R[x]}(M[x])$ is isomorphic to a subring of $S[[x]]$, while $\mathrm{End}_{R[[x]]}(M[[x]])$ is isomorphic to $S[[x]]$. As a consequence, M_R is quasi-Baer if and only if $M[X]_{R[X]}$ is quasi-Baer if and only if $M[[X]]_{R[[X]]}$ is quasi-Baer. For a module with IFP (i.e., insertion of factors property), similar results are also included. For finitely generated M_R such that every semicentral idempotent in S is central, similar results are obtained for endo-p.q.-Baer. There appeared two repetitions in the abstract.

Reviewer: Tongsuo Wu (Shanghai)

MSC:

16D80 Other classes of modules and ideals in associative algebras
16D40 Free, projective, and flat modules and ideals in associative algebras
16D70 Structure and classification for modules, bimodules and ideals (except as in 16Gxx), direct sum decomposition and cancellation in associative algebras

Keywords:

Baer rings and modules; quasi-Baer rings and modules; p.q.-Baer modules

Full Text: DOI

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Paykan, Kamal; Moussavi, Ahmad

Differential extensions of weakly principally quasi-Baer rings. (English) Zbl 1466.16019

Acta Math. Vietnam. 44, No. 4, 977-991 (2019).

Summary: A ring R is called weakly principally quasi-Baer or simply (weakly p.q.-Baer) if the right annihilator of a principal right ideal is right s-unital by right semicentral idempotents, which implies that R modulo, the right annihilator of any principal right ideal, is flat. We study the relationship between the weakly p.q.-Baer property of a ring R and those of the differential polynomial extension $R[x;\delta]$, the pseudo-differential operator ring $R((x^{-1};\delta))$, and also the differential inverse power series extension $R[[x^{-1};\delta]]$ for any derivation δ of R. Examples to illustrate and delimit the theory are provided.

MSC:

16N40 Nil and nilpotent radicals, sets, ideals, associative rings

16N60 Prime and semiprime associative rings

16S90 Torsion theories; radicals on module categories (associative algebraic aspects)

16S36 Ordinary and skew polynomial rings and semigroup rings

Cited in **3** Documents

Keywords:

differential polynomial ring; pseudo-differential operator ring; differential inverse power series ring; (weakly) p.q.-Baer; APP ring; AIP ring; s-unital ideal

Full Text: DOI

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Moussavi, Ahmad; Padashnik, Farzad; Paykan, Kamal
Archimedean skew generalized power series rings. (English) Zbl 1423.16041
Commun. Korean Math. Soc. 34, No. 2, 361-374 (2019).

Summary: Let R be a ring, $(S,\leq)$ a strictly ordered monoid, and $\omega : S \to \mathrm{End}(R)$ a monoid homomorphism. In [J. Algebra 322, No. 4, 983–994 (2009; Zbl 1188.16040)], *R. Mazurek* and *M. Ziembowski* investigated when the skew generalized power series ring $R[[S,\omega]]$ is a domain satisfying the ascending chain condition on principal left (resp. right) ideals. Following [loc. cit.], we obtain necessary and sufficient conditions on R, S and ω such that the skew generalized power series ring $R[[S,\omega]]$ is a right or left Archimedean domain. As particular cases of our general results we obtain new theorems on the ring of arithmetical functions and the ring of generalized power series. Our results extend and unify many existing results.

MSC:

16W60 Valuations, completions, formal power series and related constructions (associative rings and algebras)
16S36 Ordinary and skew polynomial rings and semigroup rings
16P70 Chain conditions on other classes of submodules, ideals, subrings, etc.; coherence (associative rings and algebras)

Keywords:

skew generalized power series ring; strictly ordered monoid; Archimedean ring

Full Text: DOI

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Zahiri, M.; **Moussavi, A.**; **Mohammadi, R.**

Associated primes and primary right ideals of generalized triangular matrix rings. (English)

Zbl 1472.16027

Commun. Algebra 47, No. 4, 1464-1477 (2019).

Summary: Let ${}_sM_R$ be an (S,R)-bimodule of the rings R and S. We determine the associated primes of a formal triangular matrix ring $T=\begin{pmatrix} R & 0 \\ M & S \end{pmatrix}$. Indeed, we show that

$$Ass(T_T)=\left\{\begin{pmatrix} Ass((R\oplus M)_R) & 0 \\ M & S \end{pmatrix}\right\}\bigcup\left\{\begin{pmatrix} R & 0 \\ M & Ass(l_s(M)) \end{pmatrix}\right\}.$$

We then obtain necessary and sufficient conditions for the tertiary decomposition theory to exist on a module over an arbitrary ring. Consequently, we classify all the tertiary right ideals of the formal triangular matrix rings.

MSC:

16S50 Endomorphism rings; matrix rings

16D25 Ideals in associative algebras

Keywords:

associated primes; generalized matrix rings; primary module; tertiary decomposition theory

Full Text: DOI

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Zahiri, Masoome; Moussavi, Ahmad; Mohammadi, Rasul
On a skew McCoy ring. (English) Zbl 1478.16016
Commun. Algebra 47, No. 10, 4061-4065 (2019).

The paper under review deals with the study of some new moments in the structure of the so-called skew McCoy rings. In fact, the authors answer in the negative a question posed by *A. R. Nasr-Isfahani* [Commun. Algebra 42, No. 4, 1565–1570 (2014; Zbl 1291.16035)]; see, for instance, Theorems 2.1, 2.6 and 2.7 as well as Example 2.8. The paper is very short but really well written and so it will definitely be of some interest for the investigators of this subject.

Reviewer: Peter Danchev (Sofia)

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings
16U80 Generalizations of commutativity (associative rings and algebras)
16U20 Ore rings, multiplicative sets, Ore localization

Cited in **1** Document

Keywords:

McCoy rings; skew polynomial rings

Full Text: DOI

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Paykan, Kamal; Moussavi, Ahmad

Primitivity of skew inverse Laurent series rings and related rings. (English) Zbl 07069115

J. Algebra Appl. 18, No. 6, Article ID 1950116, 12 p. (2019)

The paper introduces the notion of (α,δ)-primitivity of a ring R having an α-derivation with respect to an automorphism $\alpha : R \to R$. The main goals of this work is to provide several conditions ensuring that the skew inverse Laurent series ring $R((x^{-1};\alpha,\delta))$ and the skew Laurent power series rings $[[x,x^{-1};\alpha]]$ have a zero Jacobson radical or are primitive, $\bar{\alpha}$-primitive, respectively.

The results may be of the interest for the experts.

Reviewer: Ánh Pham Ngoc (Budapest)

MSC:

16N60 Prime and semiprime associative rings
16S99 Associative rings and algebras arising under various constructions
16S36 Ordinary and skew polynomial rings and semigroup rings

Cited in **3** Documents

Keywords:

skew inverse Laurent series ring; skew Laurent power series ring; primitive ring; prime ring

Full Text: DOI

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Moussavi, Ahmad; Paykan, Kamal

Triangular matrix representation of differential polynomial rings. (English) Zbl 1450.16035

Bol. Soc. Mat. Mex., III. Ser. 25, No. 1, 87-96 (2019).

Summary: Let R be a ring and δ is a derivation of R. In this paper, it is proved that, under suitable conditions, the differential polynomial ring $R[x;\delta]$ has the same triangulating dimension as R. Furthermore, for a piecewise prime ring, we determine a large class of the differential polynomial ring which have a generalized triangular matrix representation for which the diagonal rings are prime.

MSC:

16W60 Valuations, completions, formal power series and related constructions (associative rings and algebras)
16W70 Filtered associative rings; filtrational and graded techniques
16S36 Ordinary and skew polynomial rings and semigroup rings
16P40 Noetherian rings and modules (associative rings and algebras)

Cited in **1** Document

Keywords:

differential polynomial ring; semicentral idempotent; generalized triangular matrix representation; piecewise prime ring; quasi-Baer ring; triangulating dimension

Full Text: DOI

References:

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Mousavi, Hamed; **Moussavi, Ahmad**; **Rahimi, Saeed**
Skew cyclic codes over $\mathbb{F}_p + v\mathbb{F}_p + v^2\mathbb{F}_p$. (English) Zbl 1406.94093
Bull. Korean Math. Soc. 55, No. 6, 1627-1638 (2018).

Summary: In this paper, we study an special type of cyclic codes called skew cyclic codes over the ring $\mathbb{F}_p + v\mathbb{F}_p + v^2\mathbb{F}_p$, where p is a prime number. This set of codes are the result of module (or ring) structure of the skew polynomial ring $(\mathbb{F}_p + v\mathbb{F}_p + v^2\mathbb{F}_p)[x;\theta]$ where $v^3 = 1$ and θ is an $\mathbb{F}_p$-automorphism such that $\theta(v) = v^2$. We show that when n is even, these codes are either principal or generated by two elements. The generator and parity check matrix are proposed. Some examples of linear codes with optimum Hamming distance are also provided.

MSC:

94B15 Cyclic codes
11T71 Algebraic coding theory; cryptography (number-theoretic aspects)
68P30 Coding and information theory (compaction, compression, models of communication, encoding schemes, etc.) (aspects in computer science)

Keywords:
skew cyclic coding; skew polynomial rings; Hamming distance; quasi cyclic coding

Full Text: Link

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[19] http://www.codetables.de. Hamed Mousavi Department of Mathematics Tarbiat Modares University Tehran, Iran Email address: h.moosavi@modares.ac.ir Ahmad Moussavi Department of Mathematics Tarbiat Modares University Tehran, Iran Email address: moussavi.a@gmail.com and moussavi.a@modares.ac.ir Saeed Rahimi Department of Information Technology Emam Hossein University Tehran, Iran Email address: s.rahmi@sharif.edu

Paykan, Kamal; Moussavi, Ahmad
Prime ideals of generalized principally quasi-Baer rings. (English) Zbl 1424.16039
Math. Rep., Buchar. 20(70), No. 4, 349-370 (2018).

A unital ring is a Baer ring if the right annihilator of every non-empty subset is idempotent generated. Here the authors continue their study of various generalizations of Baer rings. For example, R is a (principally) quasi-Baer ring if the right annihilator of every (principal) right ideal is idempotent generated, and generalized (principally) quasi-Baer if for every (principal) right ideal I, there exists a positive integer n such that the right annihilator of I^n is idempotent generated. The authors find equivalent algebraic conditions for R to be (generalized) (principally) quasi-Baer and conditions which imply that the prime radical is the unique minimal prime ideal of R. They also determine properties of certain direct decompositions of R.

Reviewer: Phillip Schultz (Perth)

MSC:

16N40 Nil and nilpotent radicals, sets, ideals, associative rings

16N60 Prime and semiprime associative rings

Keywords:

Baer ring; right annihilator; principal right ideal

Mansoub, Arezou Karimi; **Moussavi, Ahmad**

Idempotent elements and uniquely clean property of skew monoid rings. (English) Zbl 1399.16068

Stud. Sci. Math. Hung. 55, No. 1, 23-40 (2018).

This paper studies whether various ring theoretic properties of a ring R are inherited by a certain construction $R[M,\sigma]$, called in the paper a *skew monoid ring*, where σ is an endomorphism of R and M is a certain monoid. The ring-theoretic properties in question include the structure of idempotents, the property that every finitely generated projective module is free and various versions of cleanness. For example, it is shown that idempotents in $R[M,\sigma]$ are conjugated to idempotents in R. This is used to show, in particular, that $R[M,\sigma]$ inherits from R the property that every finitely generated projective module is free. Similarly, the inheritance of various versions of cleanness is investigated.

Reviewer: Volodymyr Mazorchuk (Uppsala)

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings

16N60 Prime and semiprime associative rings

16U80 Generalizations of commutativity (associative rings and algebras)

Keywords:

skew monoid ring; strongly clear ring; endomorphism; free monoid; idempotent

Full Text: DOI

Alsatayhi, S.; **Moussavi, A.**

(φ,ψ)-derivations of BL-algebras. (English) Zbl 1378.06012

Asian-Eur. J. Math. 11, No. 1, Article ID 1850016, 19 p. (2018).

MSC:

06D35 MV-algebras

03G25 Other algebras related to logic

03G05 Logical aspects of Boolean algebras

Keywords:

BL-algebra; Boolean algebra; derivation; ideal

Full Text: DOI

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Zahiri, Masoomeh; **Moussavi, Ahmad**; **Mohammadi, Rasul**
On annihilator ideals in skew polynomial rings. (English) Zbl 1403.16025
Bull. Iran. Math. Soc. 43, No. 5, 1017-1036 (2017).

Summary: This article examines annihilators in the skew polynomial ring $R[x;\alpha,\delta]$. A ring is strongly right AB if every non-zero right annihilator is bounded. In this paper, we introduce and investigate a particular class of McCoy rings which satisfy Property (A) and the conditions asked by *P. P. Nielsen* [J. Algebra 298, No. 1, 134–141 (2006; Zbl 1110.16036)]. We assume that R is an (α,δ)-compatible ring, and prove that, if R is nil-reversible then the skew polynomial ring $R[x;\alpha,\delta]$ is strongly right AB. It is also shown that, every right duo ring with an automorphism α is skew McCoy. Moreover, if R is strongly right AB and skew McCoy, then $R[x;\alpha]$ and $R[x;\delta]$ have right Property (A).

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings
16N80 General radicals and associative rings

Keywords:

McCoy ring; strongly right AB ring; nil-reversible ring; CN ring; rings with property (A)

Full Text: Link

Nourozi, V.; **Moussavi, A.**; **Ahmadi, M.**
On nilpotent elements of skew Hurwitz polynomial rings. (English) Zbl 1399.16069
Southeast Asian Bull. Math. 41, No. 2, 239-248 (2017).

Summary: We study the structure of the set of nilpotent elements in skew Hurwitz polynomial ring (hR,α), where R is an α-Armendariz ring. We prove that if R is a nil α-Armendariz ring and $\alpha^t = I_R$, then the set of nilpotent elements of R is an α-compatible subring of R. Also, it is shown that if R is an α-Armendariz ring and $\alpha^t = I_R$, then R is nil α-Armendariz. We give some examples of non α-Armendariz rings which are nil α-Armendariz. Moreover, we show that if $\alpha^t = I_R$ for some positive integer t and R is a nil α-Armendariz ring and $\operatorname{nil}(hR\,[y;\alpha]) = \operatorname{nil}(hR)\,[y]$, then hR is nil α-Armendariz.

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings
16N20 Jacobson radical, quasimultiplication

Keywords:

Hurwitz series rings; nil Armendariz rings; Armendariz rings; nilpotent elements; α-rigid rings

Zahiri, Masoome; **Moussavi, Ahmad**; **Mohammadi, Rasul**

On rings with annihilator condition. (English) Zbl 1399.16008

Stud. Sci. Math. Hung. 54, No. 1, 82-96 (2017).

Summary: In this paper we study rings R with the property that every finitely generated ideal of R consisting entirely of zero divisors has a nonzero annihilator. The class of commutative rings with this property is quite large; for example, Noetherian rings, rings whose prime ideals are maximal, the polynomial ring $R[x]$ and rings whose classical ring of quotients are von Neumann regular. We continue to study conditions under which right mininjective rings, right FP-injective rings, right weakly continuous rings, right extending rings, one sided duo rings, semiregular rings and semiperfect rings have this property.

MSC:

16D25	Ideals in associative algebras	Cited in **2** Documents
16N40	Nil and nilpotent radicals, sets, ideals, associative rings	

Keywords:

rings with property (A); strongly right AB ring; local ring; mininjective ring; FP-injective ring; semicentral ring

Full Text: DOI

Mohammadi, Rasul; **Moussavi, Ahmad**; **Zahiri, Masoome**

A note on minimal prime ideals. (English) Zbl 1381.16003

Bull. Korean Math. Soc. 54, No. 4, 1281-1291 (2017).

Summary: Let R be a strongly 2-primal ring and I a proper ideal of R. Then there are only finitely many prime ideals minimal over I if and only if for every prime ideal P minimal over I, the ideal $P/\sqrt{I}$ of $R/\sqrt{I}$ is finitely generated if and only if the ring $R/\sqrt{I}$ satisfies the ACC on right annihilators. This result extends [*D. D. Anderson*, Proc. Am. Math. Soc. 122, No. 1, 13–14 (1994; Zbl 0841.13001)] to large classes of noncommutative rings. It is also shown that, a 2-primal ring R only has finitely many minimal prime ideals if each minimal prime ideal of R is finitely generated. Examples are provided to illustrate our results.

MSC:

16D25	Ideals in associative algebras	Cited in **2** Documents
16N60	Prime and semiprime associative rings	

Keywords:

minimal prime ideal; strongly 2-primal ring; duo ring

Full Text: DOI Link

Paykan, Kamal; **Moussavi, Ahmad**

Study of skew inverse Laurent series rings. (English) Zbl 1392.16041

J. Algebra Appl. 16, No. 12, Article ID 1750221, 33 p. (2017).

MSC:

16W60 Valuations, completions, formal power series and related constructions (associative rings and algebras)

Cited in **7** Documents

16S99 Associative rings and algebras arising under various constructions

16P60 Chain conditions on annihilators and summands: Goldie-type conditions

16S36 Ordinary and skew polynomial rings and semigroup rings

16U80 Generalizations of commutativity (associative rings and algebras)

Keywords:

skew inverse Laurent series ring; skew inverse power series ring; local; semilocal; semiperfect; I-ring; clean; quasi-duo; projective-free ring; ascending chain conditions for principal one-sided ideals; prime radical; serial ring; Goldie rank; semiprimitive; (quasi-)Baer ring; 2-primal; nilpotent element; (weak) zip ring

Full Text: DOI

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McCoy property and nilpotent elements of skew generalized power series rings. (English) Zbl 1383.16037

J. Algebra Appl. 16, No. 10, Article ID 1750183, 33 p. (2017).

MSC:

16U80 Generalizations of commutativity (associative rings and algebras)
16S36 Ordinary and skew polynomial rings and semigroup rings
16N40 Nil and nilpotent radicals, sets, ideals, associative rings

Keywords:

skew generalized power series ring; (S,ω)-McCoy ring; (S,ω)-Armendariz ring; (weak) zip ring; semicommutative ring; skew triangular matrix ring

Full Text: DOI

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The McCoy condition on skew monoid rings. (English) Zbl 1383.16030
Asian-Eur. J. Math. 10, No. 3, Article ID 1750050, 29 p. (2017).

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings
16U80 Generalizations of commutativity (associative rings and algebras)
16N40 Nil and nilpotent radicals, sets, ideals, associative rings
05C12 Distance in graphs

Cited in **1** Document

Keywords:

skew monoid ring; McCoy ring; reversible ring; skew polynomial ring; u.p.-monoid; skew triangular matrix; uniserial ring; zero-divisor graph; diameter; girth

Full Text: DOI

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On nilpotent elements of Ore extensions. (English) Zbl 1383.16034

Asian-Eur. J. Math. 10, No. 3, Article ID 1750043, 15 p. (2017).

MSC:

16U20 Ore rings, multiplicative sets, Ore localization

16S36 Ordinary and skew polynomial rings and semigroup rings

16W60 Valuations, completions, formal power series and related constructions (associative rings and algebras)

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Keywords:

nilpotent elements; α-nilpotent p.p.-ring; nil-(α,δ)-compatible ring

Full Text: DOI

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Nilpotent elements and nil-Armendariz property of skew generalized power series rings. (English) Zbl 1383.16029

Asian-Eur. J. Math. 10, No. 2, Article ID 1750034, 28 p. (2017).

MSC:

Cited in **4** Documents

- 16S36 Ordinary and skew polynomial rings and semigroup rings
- 16W60 Valuations, completions, formal power series and related constructions (associative rings and algebras)
- 06F05 Ordered semigroups and monoids
- 16U80 Generalizations of commutativity (associative rings and algebras)

Keywords:

skew generalized power series ring; (S,ω)-nil-Armendariz ring; (S,ω)-Armendariz ring; NI-ring; nil radical; nilpotent elements

Full Text: DOI

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Paykan, Kamal; Moussavi, Ahmad

Semiprimeness, quasi-Baerness and prime radical of skew generalized power series rings. (English) Zbl 1395.16048

Commun. Algebra 45, No. 6, 2306-2324 (2017).

Summary: Let R be a ring, $(S,\leq)$, a strictly ordered monoid and $\omega : S \to End(R)$ a monoid homomorphism. The skew generalized power series ring $R[[S,\omega]]$ is a common generalization of (skew) polynomial rings, (skew) power series rings, (skew) Laurent polynomial rings, (skew) group rings, and Mal'cev-Neumann Laurent series rings. In this paper we obtain necessary and sufficient conditions for the skew generalized power series ring $R[[S,\omega]]$ to be a semiprime, prime, quasi-Baer, or Baer ring. Furthermore, we study the prime radical of a skew generalized power series ring $R[[S,\omega]]$. Our results extend and unify many existing results. In particular, we obtain new theorems on (skew) group rings, Mal'cev-Neumann Laurent series rings and the ring of generalized power series.

MSC:

16W60 Valuations, completions, formal power series and related constructions (associative rings and algebras)

16S36 Ordinary and skew polynomial rings and semigroup rings

16N60 Prime and semiprime associative rings

16E50 von Neumann regular rings and generalizations (associative algebraic aspects)

Keywords:

prime radical; quasi-Baer ring; (S,ω)-Baer ring; (S,ω)-prime; (S,ω)-quasi Baer ring; (S,ω)-semiprime; skew generalized power series ring

Full Text: DOI

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Habibi, M.; **Moussavi, A.**; **Šter, J.**

A note on rings with McCoy-like properties. (English) Zbl 1369.16028

Commun. Algebra 45, No. 5, 2276-2279 (2017).

Summary: According to *P. P. Nielsen* [J. Algebra 298, No. 1, 134–141 (2006; Zbl 1110.16036)], a ring R is called *right McCoy* if for every nonzero $f(x), g(x)$ in the polynomial ring $R[x]$, $f(x)g(x) = 0$ implies that there exists a nonzero s in R such that $f(x)s = 0$. In this work, we state two notes on rings with McCoy-like conditions.

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings

15B33 Matrices over special rings (quaternions, finite fields, etc.)

Keywords:

classical quotient rings; McCoy rings; Ore rings

Full Text: DOI

References:

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[7] DOI: 10.2307/2303094 · Zbl 0060.07703 · doi:10.2307/2303094
[8] DOI: 10.1007/s00009-007-0124-z · Zbl 1142.16015 · doi:10.1007/s00009-007-0124-z
[9] DOI: 10.1080/00927870701718849 · Zbl 1142.16016 · doi:10.1080/00927870701718849
[10] DOI: 10.1016/j.jalgebra.2005.10.008 · Zbl 1110.16036 · doi:10.1016/j.jalgebra.2005.10.008

Paykan, Kamal; **Moussavi, Ahmad**
Some results on skew generalized power series rings. (English) Zbl 1358.13023
Taiwanese J. Math. 21, No. 1, 11-26 (2017).

A partially ordered set $(S, \leq)$ is said to be Artinian if every strictly decreasing sequence of elements of S is finite and is said to be narrow if every subset of pairwise order-incomparable elements of S is finite. Let R be a ring and $(S, \leq)$ a strictly ordered monoid, both of them are not necessarily commutative. Let $\omega : S \longrightarrow \mathrm{End}E$ a monoid homomorphism. For $s \in S$, put $\omega_s = \omega(s)$. Denote by $R[[S, \omega]]$ the set of all the functions $f : S \longrightarrow R$ such that the support $\mathrm{supp}(f) = \{s \in S; f(s) \neq 0\}$ is Artinian and narrow. Then for any $s \in S$ and $f, g \in R[[S, \omega]]$, the set $X_s(f, g) = \{(x, y) \in \mathrm{supp}(f) \times \mathrm{supp}(g); s = xy\}$ is finite. Thus one can define the product $fg : S \longrightarrow R$ as follows $fg(s) = \sum_{(u,v) \in X_s(f,g)} f(u)\omega_u g(v)$. With pointwise addition and this multiplication, $R[[S, \omega]]$ becomes a ring, called the ring of skew generalized power series with coefficients in R and exponents in S. This kind of construction includes many classical ring constructions. In this paper, the authors study when $R[[S, \omega]]$ has a (flat) projective socle and when it is local, semilocal, semiperfect, semiregular, left quasi-duo, clean, exchange, right stable range one, projective-free and I-ring.

Reviewer: Ali Benhissi (Monastir)

MSC:

Cited in **5** Documents

13F25 Formal power series rings
16E50 von Neumann regular rings and generalizations (associative algebraic aspects)
16S99 Associative rings and algebras arising under various constructions
06F05 Ordered semigroups and monoids

Keywords:

skew generalized power series ring; (flat)projective socle; local; semilocal; semiperfect; semiregular; I-ring; quasi-duo ring; projective-free ring

Full Text: DOI

Mansoub, A. Karimi; **Moussavi, A.**; **Habibi, M.**
Strongly clean elements of a skew monoid ring. (English) Zbl 1358.16024
Int. Electron. J. Algebra 21, 164-179 (2017).

Let σ be an endomorphism of an associative unital ring R. Let M be a Rees factor of the finitely generated free monoid $\langle u_1, \dots, u_t \rangle$ for which there exists $n \geq 1$ such that every $w \in M, w \neq 1$, satisfies $w^n = 0$. Skew monoid rings $R[M, \sigma]$, where $u_i r = \sigma(r) u_i$ for every i, are considered. The main result claims a description of a family of strongly clean elements in $R[M, \sigma]$. The result is not correct; it is based on an incorrect Theorem 2.9 from [the last two authors, Commun. Algebra 42, No. 2, 842–852 (2014; Zbl 1297.16022)], claiming a description of the Jacobson radical of such rings $R[M, \sigma]$. A simple counterexample can be obtained by taking the Thue-Morse monoid M and $\sigma = id_R$, for a field R. Such a ring is semiprimitive, while, according to Theorem 2.9, its Jacobson radical should be of codimension 1.

Reviewer: Jan Okniński (Warszawa)

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings
16U99 Conditions on elements
20M25 Semigroup rings, multiplicative semigroups of rings

Keywords:

skew monoid ring; strongly clean ring

Full Text: DOI Link

Paykan, K.; Moussavi, A.
Special properties of differential inverse power series rings. (English) Zbl 1375.16019
J. Algebra Appl. 15, No. 10, Article ID 1650181, 23 p. (2016).

MSC:

16W60 Valuations, completions, formal power series and related constructions (associative rings and algebras)
16S36 Ordinary and skew polynomial rings and semigroup rings
16P60 Chain conditions on annihilators and summands: Goldie-type conditions

Cited in **8** Documents

Keywords:

differential inverse power series ring; local; semilocal; semiperfect I-ring; clean; quasi-duo; projective-free ring; ascending chain conditions for principal one-sided ideals; semicentral idempotent; generalized triangular matrix representation; piecewise prime ring; (principally) quasi-Baer ring; triangulating dimension; (flat) projective socle ring

Full Text: DOI

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Mohammadi, Rasul; Moussavi, Ahmad; Zahiri, Masoome

On annihilations of ideals in skew monoid rings. (English) Zbl 1353.16029

J. Korean Math. Soc. 53, No. 2, 381-401 (2016).

Skew model rings $R*M$ of a monoid M over an unital ring R, subject to a monoid homomorphism $\sigma : M \to \mathrm{End}$, are considered. The authors' nonzero right annihilator is right bounded, i.e., it contains a nonzero two-sided ideal. This notion was introduced by *S. U. Hwang* et al. [Glasg. Math. J. 51, No. 3, 539–559 (2009; Zbl 1198.16001)]. Certain necessary and certain sufficient conditions on R and M are determined for $R*M$ to be a strongly right AB-ring.

All of the main results are proved under the hypothesis that M is a unique product monoid. For example, if R is a nil-reversible ring (meaning that, if $a \in R$ and $b \in \mathrm{nil}(R)$, then $ab = 0$ if and only if $ba = 0$) and R is M-compatible, then $R*M$ is a strongly right AB-ring. Here, M-compatibility means that $ab = 0$ if and only if $a(\sigma(m)(b)) = 0$, for every $a, b \in R$ and $m \in M$.

In another direction, it is shown that under some additional hypotheses, the strong right AB-property on $R*M$ implies that $R*M$ has the right property (A), introduced in the noncommutative setting by *C. Y. Hong* et al. [J. Algebra 315, No. 2, 612–628 (2007; Zbl 1156.16001)].

The latter property is concerned with right annihilators of two-sided ideals and it is a generalization of the notion introduced by *J. A. Huckaba* and *J. M. Keller* [Pac. J. Math. 83, 375–379 (1979; Zbl 0388.13001)] for the class of commutative rings. Relations between the strong right AB-property and the M-Armendariz and M-McCoy properties are also studied for the considered class of skew monoid rings $R * M$.

Reviewer: Jan Okniński (Warszawa)

MSC:

16S36	Ordinary and skew polynomial rings and semigroup rings	Cited in **5** Documents
16D25	Ideals in associative algebras	
16D70	Structure and classification for modules, bimodules and ideals (except as in 16Gxx), direct sum decomposition and cancellation in associative algebras)	
16S34	Group rings	
20M99	Semigroups	
16N40	Nil and nilpotent radicals, sets, ideals, associative rings	

Keywords:

skew monoid ring; strongly right AB ring; ring with property (A); McCoy ring; nil-reversible ring; unique product monoid

Full Text: DOI Link

Paykan, K.; **Moussavi, A.**
Baer and quasi-Baer properties of skew generalized power series rings. (English)
Zbl 1346.16042
Commun. Algebra 44, No. 4, 1615-1635 (2016).

Summary: Let R be a ring, $(S, \leq)$ a strictly ordered monoid and $\omega\colon S \to \mathrm{End}(R)$ a monoid homomorphism. The skew generalized power series ring $R[[S,\omega]]$ is a common generalization of (skew) polynomial rings, (skew) power series rings, (skew) Laurent polynomial rings, (skew) group rings, and Mal'cev-Neumann Laurent series rings. In this article, we study relations between the (quasi-) Baer, principally quasi-Baer and principally projective properties of a ring R, and its skew generalized power series extension $R[[S,\omega]]$. As particular cases of our general results, we obtain new theorems on (skew) group rings, Mal'cev-Neumann Laurent series rings, and the ring of generalized power series.

MSC:

16W60	Valuations, completions, formal power series and related constructions (associative rings and algebras)	Cited in **8** Documents
16S36	Ordinary and skew polynomial rings and semigroup rings	
16P60	Chain conditions on annihilators and summands: Goldie-type conditions	
16U80	Generalizations of commutativity (associative rings and algebras)	

Keywords:

PP rings; principally projective rings; quasi-Baer rings; p.q.-Baer rings; skew generalized power series rings; Armendariz rings

Full Text: DOI

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Moussavi, A.
On radicals of skew inverse Laurent series rings. (English) Zbl 1345.16020
Algebra Colloq. 23, No. 2, 335-346 (2016).

For a ring R, the well-known result of Amitsur giving the Jacobson radical of a polynomial ring $R[x]$, $J(R[x]) = (J(R[x]) \cap R)[x]$ and $J(R[x]) \cap R$ is a nil ideal of R (which coincides with the nil radical of R when R is commutative), has been generalized to skew polynomial rings, skew Laurent polynomial rings and skew formal power series rings. For the rings of formal skew inverse Laurent series and the ring of formal skew power series in x^{-1}, information on their Jacobson radical, respectively, is known only for a few cases; mostly where the base ring R fulfills some finiteness requirement.

In this paper the author follows a different approach. It is rather assumed that the base ring R fulfills an Armendariz-like condition (product of two power series zero implies certain products of coefficients zero). For such a ring R, if S denotes any one of the five types of rings mentioned above, it is shown that $\mathrm{rad}(S) = \mathrm{rad}(R)S = \mathrm{nil}(S)$ and $\mathrm{rad}(S) \cap R = \mathrm{nil}(R)$ where $\mathrm{rad}(-)$ denotes a radical that could be any one of the Wedderburn, lower nil, Levitzki, upper nil or Jacobson radicals and $\mathrm{nil}(R)$ is the set of nilpotent elements of R.

Reviewer: Stefan Veldsman (Port Elizabeth)

MSC:

16N80 General radicals and associative rings
16W60 Valuations, completions, formal power series and related constructions (associative rings and algebras)
16N20 Jacobson radical, quasimultiplication
16N40 Nil and nilpotent radicals, sets, ideals, associative rings
16S36 Ordinary and skew polynomial rings and semigroup rings

Keywords:

Amitsur condition; nilpotent elements; skew inverse Laurent series rings; Jacobson radical; nil radical; nil ideals; Armendariz-like condition

Full Text: DOI

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Quasi-Armendariz generalized power series rings. (English) Zbl 1346.16041
J. Algebra Appl. 15, No. 5, Article ID 1650086, 38 p. (2016).

MSC:

Cited in **3** Documents

- 16W60 Valuations, completions, formal power series and related constructions (associative rings and algebras)
- 16S36 Ordinary and skew polynomial rings and semigroup rings
- 16P60 Chain conditions on annihilators and summands: Goldie-type conditions
- 16S50 Endomorphism rings; matrix rings
- 16U80 Generalizations of commutativity (associative rings and algebras)

Keywords:

skew generalized power series rings; quasi-Armendariz rings; quasi-Baer rings; AIP rings; generalized quasi-Baer rings; generalized triangular matrix rings; skew triangular matrix rings

Full Text: DOI

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Majidinya, A.; **Moussavi, A.**
Weakly principally quasi-Baer rings. (English) Zbl 1343.16001
J. Algebra Appl. 15, No. 1, Article ID 1650002, 20 p. (2016).

Let R be a ring with 1. An idempotent e is called left (respectively, right) semicentral if $xe = exe$ (respectively, $ex = exe$) for all $x \in R$. An ideal I of R is called right s-unital by right semicentral idempotents if for every $x \in I$, $xe = x$ for some right semicentral idempotent $e \in I$, and R is called weakly principally quasi-Baer (= weakly p.q.-Baer) if the left annihilator $l_R(Ra)$ of Ra in R for all $a \in R$ is right s-unital by right semicentral idempotents.

The authors show some properties and characterizations of a weakly p.q.-Baer ring. The following statements are equivalent: (1) R is weakly p.q.-Baer. (2) For every finitely generated left ideal I of R, $l_R(I)$ is right s-unital by right semicentral idempotents. (3) For every principal ideal I of R, $l_R(I)$ is right s-unital by right semicentral idempotents. (4) For every finitely generated ideal I of R, $l_R(I)$ is right s-unital by right semicentral idempotents. (5) The upper triangular matrix ring of order n is a weakly p.q.-Baer ring for a positive integer n. (6) $R[x]$ is a weakly p.q.-Baer ring.

It is also shown that the weakly p.q.-Baer condition is a Morita invariant property. Moreover, for a prime ideal P of a weakly p.q.-Baer ring R, let $O(P) = \{x \in R \mid aRs = 0 \text{ for some } s \notin P\}$ and $\overline{O}(P) = \{x \in R \mid x^n \in O(P) \text{ for some } n \in N\}$. Then equivalent conditions are given for R such that every prime ideal contains a unique minimal prime ideal, and when $O(P) \neq 0$ for every minimal prime ideal P of R, R has a nontrivial representation as a subdirect product of the right ring of fractions $R[S_P^{-1}]$ where $S_P = \{e \mid e \notin P \text{ is a left semicentral idempotent}\}$ and P ranges through all minimal prime ideals.

Reviewer: George Szeto (Peoria)

MSC:

16D40 Free, projective, and flat modules and ideals in associative algebras
16D70 Structure and classification for modules, bimodules and ideals (except as in 16Gxx), direct sum decomposition and cancellation in associative algebras)
16P60 Chain conditions on annihilators and summands: Goldie-type conditions
16D25 Ideals in associative algebras
16S36 Ordinary and skew polynomial rings and semigroup rings
16N60 Prime and semiprime associative rings
16U80 Generalizations of commutativity (associative rings and algebras)
16S90 Torsion theories; radicals on module categories (associative algebraic aspects)

Cited in **3** Documents

Keywords:

weakly p.q.-Baer rings; left APP rings; principally p.q.-Baer rings; PP-rings; annihilators; minimal prime ideals; ring direct summands; right s-unital ideals; semicentral idempotents

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Amirzadeh Dana, P.; **Moussavi, A.**
Endo-principally quasi-Baer modules. (English) Zbl 1343.16005
J. Algebra Appl. 15, No. 2, Article ID 1550132, 19 p. (2016).

Let R be a ring with 1, M a right R-module and $S = \mathrm{End}_R(M)$. Then M is called an endo-principally quasi-Baer module (= endo-p.q.-Baer) if for every $m \in M$, the left annihilator of Sm in S is Se for some $e^2 = e \in S$. A ring R is called left p.q.-Baer if the left annihilator of any left principal ideal of R is Re for some $e^2 = e \in R$.

The following statements are equivalent: (1) R is a left p.q.-Baer ring. (2) Every free right R-module is an endo-p.q.-Baer module. (3) Every projective right R-module is an endo-p.q.-Baer module.

A module M is called an endo-principally extending module if for every $m \in M$, there is an idempotent $e \in S$ such that the submodule of M spanned by Sm is essential in eM, an $(FT\text{-}K)$-nonsingular module if for any invariant ideal I of S such that the right annihilator of I in M, $r_M(I)$ essential in eM, $r_M(I) = eM$, and $(FT\text{-}K)$-cononsingular if for any invariant submodule N of a direct summand of M and N' an invariant submodule of N such that $\varphi(N') \neq 0$ for every $\varphi \in \mathrm{End}_R(N)$ implies N' essential in N. Then every $(FT\text{-}K)$-nonsingular endo-principal extending module is endo-p.q.-Baer, and every $(FT\text{-}K)$-cononsingular endo-p.q.-Baer module is an endo-principally extending module. Moreover, it is shown that $\mathrm{End}_R(M)$ is a left p.q.-Baer ring if M is an endo-p.q.-Baer module and $\mathrm{End}_R(M)$ has no infinite set of nonzero orthogonal right semicentral idempotents e (that is, $er = ere$ for each $r \in R$).

Reviewer: George Szeto (Peoria)

MSC:

16D80 Other classes of modules and ideals in associative algebras
16D40 Free, projective, and flat modules and ideals in associative algebras
16D70 Structure and classification for modules, bimodules and ideals (except as in 16Gxx), direct sum decomposition and cancellation in associative algebras)
16P60 Chain conditions on annihilators and summands: Goldie-type conditions

Cited in **3** Documents

Keywords:

quasi-Baer rings; quasi-Baer modules; endo-p.q.-Baer modules; extending modules; FI-extending modules; endomorphism rings; annihilators; semicentral idempotents

Full Text: DOI

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Majidinya, A.; **Moussavi, A.**; **Paykan, K.**
Rings in which the annihilator of an ideal is pure. (English) Zbl 1345.16007
Algebra Colloq. 22, Spec. Iss. 1, 947-968 (2015).

MSC:

16D80 Other classes of modules and ideals in associative algebras
16D40 Free, projective, and flat modules and ideals in associative algebras
16P60 Chain conditions on annihilators and summands: Goldie-type conditions
16D70 Structure and classification for modules, bimodules and ideals (except as in 16Gxx), direct sum decomposition and cancellation in associative algebras)

Keywords:

AIP-rings; p.q.-Baer ring; s-unital ideals; pure annihilators; PP-rings

Full Text: DOI

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Moussavi, Ahmad; Paykan, Kamal
Zero divisor graphs of skew generalized power series rings. (English) Zbl 1332.16035
Commun. Korean Math. Soc. 30, No. 4, 363-377 (2015).

Summary: Let R be a ring, $(S,\leq)$ a strictly ordered monoid and $\omega\colon S\to \mathrm{End}(R)$ a monoid homomorphism. The skew generalized power series ring $R[[S,\omega]]$ is a common generalization of (skew) polynomial rings, (skew) power series rings, (skew) Laurent polynomial rings, (skew) group rings, and Mal'cev-Neumann Laurent series rings. In this paper, we investigate the interplay between the ring-theoretical properties of $R[[S,\omega]]$ and the graph-theoretical properties of its zero-divisor graph $\overline{\Gamma}(R[[S,\omega]])$. Furthermore, we examine the preservation of diameter and girth of the zero-divisor graph under extension to skew generalized power series rings.

MSC:

16W60	Valuations, completions, formal power series and related constructions (associative rings and algebras)	Cited in **2** Documents
16S36	Ordinary and skew polynomial rings and semigroup rings	
05C25	Graphs and abstract algebra (groups, rings, fields, etc.)	
05C12	Distance in graphs	

Keywords:

zero-divisor graphs; diameter; girth; skew generalized power series rings; skew power series rings; reduced rings

Full Text: DOI Link

Manaviyat, R.; Moussavi, A.
On annihilator ideals of pseudo-differential operator rings. (English) Zbl 1387.16018
Algebra Colloq. 22, No. 4, 607-620 (2015).

MSC:

16S32	Rings of differential operators (associative algebraic aspects)	Cited in **2** Documents
16S36	Ordinary and skew polynomial rings and semigroup rings	
16W60	Valuations, completions, formal power series and related constructions (associative rings and algebras)	

Keywords:

pseudo-differential operator ring; annihilator ideal; Baer ring; quasi-Baer ring; Armendariz-like condition

Full Text: DOI

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Habibi, Mohammad; Moussavi, Ahmad

Special properties of a skew triangular matrix ring with constant diagonal. (English)

Zbl 1343.16021
Asian-Eur. J. Math. 8, No. 3, Article ID 1550021, 10 p. (2015).

Let R be an associative ring with identity, σ an endomorphism of R with $\sigma(1) = 1$ and $n \geq 1$. The skew triangular matrix ring $S(R, n, \sigma)$ with constant main diagonal is the ring of $n \times n$ triangular matrices with multiplication $(a_{ij})(b_{ij}) = (c_{ij})$ where, for $i \leq j$,

$$c_{ij} = a_{ii}b_{ij} + a_{i,i+1}\sigma(b_{i+1,j}) + a_{i,i+2}\sigma^2(b_{i+2,j}) + \cdots + a_{i,j}\sigma^{j-i}(b_{jj}).$$

The authors study the transfer of a variety of conditions and properties between R and $S(R, n, \sigma)$. In many cases this is achieved via the constant diagonal element; for example, if J denotes the Jacobson radical, then $J(S(R, n, \sigma)) = \{(a_{ij}) \mid a_{11} \in J(R)\}$. It is shown that a number of algebraic properties is satisfied by the ring R if and only if also $S(R, n, \sigma)$ satisfies the property. Examples of such properties include semi-perfect, left Kasch, right zip and weak zip.

Reviewer: Stefan Veldsman (Port Elizabeth)

MSC:

16S50 Endomorphism rings; matrix rings
16S36 Ordinary and skew polynomial rings and semigroup rings
16N40 Nil and nilpotent radicals, sets, ideals, associative rings

Cited in **1** Document

Keywords:
skew triangular matrix rings; radicals, annihilator properties; zero-divisor properties

Full Text: DOI

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Ahmadi, Morteza; **Moussavi, Ahmad**; **Nourozi, Vahid**
Nilradicals of skew Hurwitz series of rings. (English) Zbl 1329.16015
Matematiche 70, No. 1, 125-136 (2015).

The authors continue their study of the ring (HR, α) of skew Hurwitz series over a noncommutative ring R with identity; α is an endomorphism of R. This ring is a variant of the ring of formal power series and it is known to have interesting applications in differential algebra. – The main thrust of this paper is to describe the upper nilradical of (HR, α) in terms of the upper nilradical of the base ring R.

Reviewer: Stefan Veldsman (Port Elizabeth)

MSC:

16N40 Nil and nilpotent radicals, sets, ideals, associative rings
16W60 Valuations, completions, formal power series and related constructions (associative rings and algebras)
16S36 Ordinary and skew polynomial rings and semigroup rings

Keywords:

skew Hurwitz series rings; nil radical; prime radical

Full Text: Link

Habibi, M.; **Moussavi, A.**; **Alhevaz, A.**
On skew triangular matrix rings. (English) Zbl 1341.16029
Algebra Colloq. 22, No. 2, 271-280 (2015).

From the introduction: All rings considered in this paper are associative with identity. Let R be a ring with an endomorphism σ such that $\sigma(1) = 1$. Consider the skew triangular matrix ring as a set of all triangular matrices with addition pointwise and a new multiplication subject to the condition $E_{ij}r = \sigma^{j-i}(r)E_{ij}$ for each elementary matrix E_{ij} with $r \in R$ and $i \leq j$. So $(a_{ij})(b_{ij}) = (c_{ij})$, $c_{ij} = a_{ii}b_{ij} + a_{i,i+1}\sigma(b_{i+1,j}) + \cdots + a_{ij}\sigma^{j-i}(b_{jj})$ for each $i \leq j$ and we denote it by $T_n(R, \sigma)$. The subring of the skew triangular matrices with constant main diagonal is denoted by $S(R, n, \sigma)$, and the subring of the skew triangular matrices with constant diagonals is denoted by $T(R, n, \sigma)$.

This paper investigates a variety of conditions and related properties that the skew matrix rings $S(R, n, \sigma)$

and $T(R, n, \sigma)$ might inherit from a ring R. These ring constructions will prove to be useful in ring theory for building examples and counterexamples, perhaps the most interesting class of non-semiprime rings. Our results generate new families of examples of rings (with zero-divisors) subject to a given condition. We show that many ring-theoretic properties of R like various Armendariz-type properties as well as the clean property are inherited by the rings $S(R, n, \sigma)$ and $T(R, n, \sigma)$. We also consider the quasi-Armendariz property of the rings $S(R, n, \sigma)$ and $T(R, n, \sigma)$. They allow the construction of rings with a non-zero nilpotent ideal of arbitrary index of nilpotency which have these properties. Throughout the paper we only handle the case $S(R, n, \sigma)$, and similar methods can be used for the ring $T(R, n, \sigma)$.

MSC:

16S50 Endomorphism rings; matrix rings

16S36 Ordinary and skew polynomial rings and semigroup rings

Keywords:

quasi-Armendariz rings; clean rings; skew triangular matrix rings

Full Text: DOI

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Ahmadi, M.; **Moussavi, A.**; **Nourozi, V.**

On skew Hurwitz serieswise Armendariz rings. (English) Zbl 1308.16033

Asian-Eur. J. Math. 7, No. 3, Article ID 1450036, 19 p. (2014).

Let R be an associative ring with unity and α an endomorphism of R. The ring of skew Hurwitz series over R, written as (HR, α), is the set of all functions $f\colon \mathbb{N} \to R$ with respect to componentwise addition and multiplication fg given by

$$(fg)(n) = \sum_{k=0}^{n} \binom{n}{k} f(k)\alpha^k(g(n-k))$$

for all $n \in \mathbb{N}$, $\mathbb{N}$ is the set of non-negative integers. The subring of all the functions with finite support is denoted by (hR, α).

Analogous to the concept of an Armendariz ring, the authors define and study skew Hurwitz serieswise Armendariz rings; the latter being commutative rings R for which $fg = 0$ if and only if $f(n)g(m) = 0$ for all n, m where $f, g \in HR$. For such a ring R, certain radicals of HR and hR are determined and it is shown that these two rings fulfill the Köthe conjecture (no nonzero nil ideals implies no nonzero one-sided nil ideals). The transfer of many properties, for example like being symmetric, reversible, prime and Baer, between R, HR and hR is also discussed.

Reviewer: Stefan Veldsman (Port Elizabeth)

MSC:

16W60 Valuations, completions, formal power series and related constructions (associative rings and algebras)

16S36 Ordinary and skew polynomial rings and semigroup rings

16N40 Nil and nilpotent radicals, sets, ideals, associative rings

16P60 Chain conditions on annihilators and summands: Goldie-type conditions

16U80 Generalizations of commutativity (associative rings and algebras)

Keywords:

skew Hurwitz series rings; skew Hurwitz serieswise Armendariz rings; radicals; Köthe conjecture; nil ideals

Full Text: DOI

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Nasr-Isfahani, A. R.; Moussavi, A.
Ore extensions of Jacobson rings. (English) Zbl 1307.16025
J. Algebra 415, 234-246 (2014).

For a Jacobson ring R, it is well-known that $R[x]$ is a Jacobson ring, but this is not necessarily true for the skew polynomial extension $R[x;\alpha]$. For an automorphism α conditions are known when it will be the case. In this paper the authors consider this problem and add to the complexity by requiring that α is only a monomorphism and not necessarily surjective.

Fix a monomorphism $\alpha\colon R\to R$. An ideal I of R is called strongly α-prime if $\alpha^{-1}(I)=I$ and for all ideals B and C of R with $\alpha(C)\subseteq C$ and $BC\subseteq I$, it follows that $B\subseteq I$ or $C\subseteq I$. The ring R is called strongly α-prime if $\{0\}$ is a strongly α-prime ideal of R.

A ring R may satisfy the following conditions:

(A_1) For each strongly α-prime ideal I of R, $(R/I)[x;\alpha]$ is semiprimitive.

(A_2) For each strongly α-prime ideal I of R, R/I is semiprime.

(A_3) For each prime ideal P of $R[x;\alpha]$ with $x\notin P$, $x+P$ is a regular element of $R[x;\alpha]/P$.

The main result shows that if a Jacobson ring R satisfies these three conditions, then $R[x;\alpha]$ is a Jacobson ring. This result covers the known cases for this conclusion. It is also shown that any left Noetherian ring fulfills these three conditions.

Reviewer: Stefan Veldsman (Port Elizabeth)

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings
16N20 Jacobson radical, quasimultiplication
16P40 Noetherian rings and modules (associative rings and algebras)

Keywords:

Jacobson rings; Ore extensions

Full Text: DOI

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Paykan, K.; **Moussavi, A.**; **Zahiri, M.**

Special properties of rings of skew generalized power series. (English) Zbl 1297.16045

Commun. Algebra 42, No. 12, 5224-5248 (2014).

Summary: Let R be a ring, S a strictly ordered monoid, and $\omega\colon S \to \mathrm{End}(R)$ a monoid homomorphism. In [Bull. Aust. Math. Soc. 81, No. 3, 361-397 (2010; Zbl 1198.16025)] *G. Marks, R. Mazurek* and *M. Ziembowski* study the (S,ω)-Armendariz condition on R, a generalization of the standard Armendariz condition from polynomials to skew generalized power series. Following [loc. cit.], we provide various classes of nonreduced (S,ω)-Armendariz rings, and determine radicals of the skew generalized power series ring $R[[S^{\leq},\omega]]$, in terms of those of an (S,ω)-Armendariz ring R. We also obtain some characterizations for a skew generalized power series ring to be local, semilocal, clean, exchange, uniquely clean, 2-primal, or symmetric.

MSC:

16W60 Valuations, completions, formal power series and related constructions (associative rings and algebras)

16S36 Ordinary and skew polynomial rings and semigroup rings

16P60 Chain conditions on annihilators and summands: Goldie-type conditions

Keywords:

skew generalized power series rings; clean rings; exchange rings; local rings; nil radical; prime radical; 2-primal rings; Armendariz rings

Full Text: DOI

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Majidinya, A.; **Moussavi, A.**
Principally quasi-Baer skew generalized power series modules. (English) Zbl 1291.16040
Commun. Algebra 42, No. 4, 1460-1472 (2014).

Summary: Let R be a ring and S a strictly totally ordered monoid. Let $\omega\colon S\to \mathrm{End}(R)$ be a monoid homomorphism. Let M_R be an ω-compatible module and either R satisfies the ascending chain conditions (ACC) on left annihilator ideals or every S-indexed subset of right semicentral idempotents in R has a generalized S-indexed join. We show that M_R is p.q.-Baer if and only if the generalized power series module $M[[S]]_{R[[S,\omega]]}$ is p.q.-Baer. As a consequence, we deduce that for an ω-compatible ring R, the skew generalized power series ring $R[[S,\omega]]$ is right p.q.-Baer if and only if R is right p.q.-Baer and either R satisfies the ACC on left annihilator ideals or any S-indexed subset of right semicentral idempotents in R has a generalized S-indexed join in R. Examples to illustrate and delimit the theory are provided.

MSC:

16W60 Valuations, completions, formal power series and related constructions (associative rings and algebras)
16P60 Chain conditions on annihilators and summands: Goldie-type conditions
16S36 Ordinary and skew polynomial rings and semigroup rings

Keywords:

generalized power series modules; principally quasi-Baer rings; skew generalized power series rings; strictly ordered monoids; semicentral idempotents; right p.q.-Baer rings; ACC on left annihilator ideals

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Habibi, M.; **Moussavi, A.**
Annihilator properties of skew monoid rings. (English) Zbl 1297.16022
Commun. Algebra 42, No. 2, 842-852 (2014).

The authors study the transfer of properties between the unital associative ring R and the skew monoid ring $R[M;\sigma]$ where M is a certain monoid with $M^n=0$ and σ is an endomorphism of R. We mention a few typical results.

R is left zip (resp. left Kasch; semiperfect) if and only if $R[M;\sigma]$ has the corresponding property. When σ is an automorphism, it is shown that R is left zip (resp. left mininjective; right mininjective; right Kasch) if and only if $R[M;\sigma]$ has the corresponding property (for the mininjectivity M is required to be the free monoid generated by $\{u\}\cup\{0\}$ with $u^n=0$). An example is given to show that when the endomorphism σ is not injective, then $R[M;\sigma]$ can be left zip but R need not be.

The well-known nil radicals of $R[M;\sigma]$ are also determined. First it is shown that there is a one-to-one correspondence between the prime (resp. semiprime; completely prime; completely semiprime; maximal (left or right)) ideals of R and those of $R[M;\sigma]$. Then R will be a Jacobson ring if and only if $R[M;\sigma]$ is Jacobson. Moreover, if α denotes any one of the Wedderburn radical (sum of all nilpotent ideals), the lower nil radical (prime radical), the Levitzky radical (sum of all locally nilpotent ideals) or the upper nil radical (sum of all nil ideals), then $\alpha(R[M;\sigma])=\left\{\sum_{g\in M} r_g g\in R[M;\sigma]\mid r_g\in\alpha(R)\right\}$.

Reviewer: Stefan Veldsman (Port Elizabeth)

MSC:

16S35 Twisted and skew group rings, crossed products
16N40 Nil and nilpotent radicals, sets, ideals, associative rings
16N80 General radicals and associative rings
16L60 Quasi-Frobenius rings
16W20 Automorphisms and endomorphisms
20M25 Semigroup rings, multiplicative semigroups of rings
16D25 Ideals in associative algebras
16P60 Chain conditions on annihilators and summands: Goldie-type conditions

Cited in **2** Reviews
Cited in **4** Documents

Keywords:

skew monoid rings; zip rings; Kasch rings; quasi-Frobenius rings; nil radical; endomorphisms

Full Text: DOI

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Alhevaz, A.; **Moussavi, A.**
On monoid rings over nil Armendariz ring. (English) Zbl 1300.16027
Commun. Algebra 42, No. 1, 1-21 (2014).

Let R be an associative unital ring and let M be a monoid. Denote by $\mathrm{nil}(R)$ the set of nilpotent elements of R. Then R is said to be a nil M-Armendariz ring if for any two elements $a = \sum_{i=1}^{m} \alpha_i g_i$ and $b = \sum_{j=1}^{n} \beta_j h_j$ in the monoid ring $R[M]$, with $\alpha_i, \beta_j \in R$, $g_i, h_j \in M$, it follows that $g_i h_j \in \mathrm{nil}(R)$ for all i, j whenever $ab \in \mathrm{nil}(R[M])$.

This new notion is a common generalization of the nil Armendariz property (whose definition is based on the polynomial ring $R[x]$) and of the M-Armendariz property, considered earlier by a number of authors. Some basic properties of nil M-Armendariz rings are studied, including behaviour of this property under certain ring constructions. Connections to some related notions are discussed and several examples are presented.

Reviewer: Jan Okniński (Warszawa)

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings
20M25 Semigroup rings, multiplicative semigroups of rings
16N40 Nil and nilpotent radicals, sets, ideals, associative rings
16P60 Chain conditions on annihilators and summands: Goldie-type conditions

Cited in **4** Documents

Keywords:

monoid rings; nil Armendariz rings; nilpotent elements; polynomial rings; unique product monoids

Full Text: DOI

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Majidinya, A.; **Moussavi, A.**
On APP skew generalized power series rings. (English) Zbl 1307.16037
Stud. Sci. Math. Hung. 50, No. 4, 436-453 (2013).

Let R be an associative ring with a unity. By *Z. Liu* and *R. Zhao* [Glasg. Math. J. 48, No. 2, 217-229 (2006; Zbl 1110.16003)], the ring R is called a left APP-ring if the left annihilator of every principal left ideal of R is right s-unital as an ideal of R. An ideal I of R is right s-unital if for each $a \in I$ there is an element $x \in I$ with $ax = a$. Equivalently, R is a left APP-ring if R modulo the left annihilator of every principal left ideal of R is a flat R-module.

Let S be a strictly totally ordered additive and commutative monoid and let $\omega\colon S \to \mathrm{End}(R)$ be a monoid homomorphism. Then let $\overline{R} = R[[S,\omega]]$ be the corresponding skew generalized power series ring with coefficients in R and exponents in S, defined by *R. Mazurek* and *M. Ziembowski* [Commun. Algebra 36, No. 5, 1855-1868 (2008; Zbl 1159.16032)]. This construction generalizes several classical ring constructions. The ring R is called (S,ω)-weakly rigid if for each $a,b \in R$ we have $aRb = 0$ if and only if $a\omega(s)(Rb) = 0$ for all $s \in S$. The ring R is called (S,ω)-Armendariz if whenever $f,g \in \overline{R}$ and $fg = 0$, then $f(s)\omega(s)(g(t)) = 0$ for all $s,t \in S$.

When R is (S,ω)-weakly rigid and (S,ω)-Armendariz, then the authors find necessary and sufficient conditions under which $\overline{R}$ is a right APP-ring. A similar result is obtained also in the case when $\omega(S) \subseteq \mathrm{Aut}(R)$ and R is (S,ω)-strongly Armendariz (i.e. $f,g \in \overline{R}$ and $fg = 0$ implies $f(u)g(v) = 0$ for all $u,v \in S$), or $\omega(s) = \mathrm{id}_R$ for all $s \in S$. Some other special cases also are investigated.

Reviewer: S. V. Mihovski (Plovdiv)

MSC:

16W60 Valuations, completions, formal power series and related constructions (associative rings and algebras)
16S36 Ordinary and skew polynomial rings and semigroup rings
16P60 Chain conditions on annihilators and summands: Goldie-type conditions

Cited in **2** Documents

Keywords:

skew generalized power series rings; strictly ordered monoids; left APP-rings; Armendariz rings; weakly rigid rings

Full Text: DOI

Majidinya, A.; **Moussavi, A.**; **Paykan, K.**
Generalized APP-rings. (English) Zbl 1300.16002
Commun. Algebra 41, No. 12, 4722-4750 (2013).

All rings are assumed to be rings with identity. A ring R is called left PP if every principal left ideal of R is projective. Hence a ring R is left PP if and only if the left annihilator of any element of R is generated, as a left ideal, by an idempotent. A ring R is called left principally quasi-Baer (simply, left p.q.-Baer) if the left annihilator of a principal left ideal is generated, as a left ideal, by an idempotent. Thus a ring R is left p.q.-Baer if and only if R modulo the left annihilator of any principal left ideal is projective. According to *A. Moussavi*, *H. Haj Seyyed Javadi*, and *E. Hashemi* [Commun. Algebra 33, No. 7, 2115-2129 (2005; Zbl 1088.16018)], a ring R is called generalized left (principally) quasi-Baer if for any (principal) left ideal I of R, the left annihilator of I^n is generated, as a left ideal, by an idempotent for some positive integer n, depending on I.

On the other hand, by *H. Tominaga* [Math. J. Okayama Univ. 18, 117-134 (1976; Zbl 0335.16020)], a left ideal I of a ring R is said to be right s-unital if for each $a \in I$, there exists $x \in I$ such that $ax = a$. Following *Z. Liu* and *R. Zhao* [Glasg. Math. J. 48, No. 2, 217-229 (2006; Zbl 1110.16003)], a ring R is called left APP if the left annihilator $\ell_R(Ra)$ is right s-unital as an ideal of R for any element $a \in R$. Thus a ring R is left APP if and only if R modulo the left annihilator of any principal left ideal is flat. Therefore left APP rings are left p.q.-Baer.

According to the authors a ring R is called a generalized left APP ring if $\ell_R(Ra)^n$ is s-unital as an ideal of R for any element $a \in R$ and some positive integer n. Thus a ring R is generalized left APP if and only if R modulo $\ell_R(Ra)^n$ is flat as a left R-module for any element $a \in R$ and some positive integer n. The authors extend and unify the above-mentioned classes of rings by generalized left APP rings under some conditions.

Reviewer: J. K. Park (Pusan)

MSC:

16D40	Free, projective, and flat modules and ideals in associative algebras	Cited in **3** Documents
16D25	Ideals in associative algebras	
16D70	Structure and classification for modules, bimodules and ideals (except as in 16Gxx), direct sum decomposition and cancellation in associative algebras)	
16P60	Chain conditions on annihilators and summands: Goldie-type conditions	

Keywords:

left annihilators; generalized p.q.-Baer rings; generalized left APP-rings; minimal prime ideals; PP-rings; s-unital ideals; triangular matrix rings; projective principal left ideals

Full Text: DOI

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Manaviyat, R.; **Moussavi, A.**; **Habibi, M.**
Principally quasi-Baer skew power series modules. (English) Zbl 1272.16041
Commun. Algebra 41, No. 4, 1278-1291 (2013).

Summary: A module M_R is called principally quasi-Baer (or simply p.q.-Baer) if the annihilator of every cyclic submodule of M_R is generated by an idempotent, as a right ideal. Let α be an automorphism of R and M_R be an α-compatible module and every countable subset of right semicentral idempotents in R has a generalized countable join or R satisfies the ACC on left annihilator ideals. It is shown that M_R is p.q.-Baer if and only if $M[[x]]_{R[[x;\alpha]]}$ is p.q.-Baer if and only if $M[[x,x^{-1}]]_{R[[x,x^{-1};\alpha]]}$ is p.q.-Baer. As a consequence, we unify and extend nontrivially many of the previously known results. Examples to illustrate and delimit the theory are provided.

MSC:

16W60 Valuations, completions, formal power series and related constructions (associative rings and algebras)
16P60 Chain conditions on annihilators and summands: Goldie-type conditions
16S36 Ordinary and skew polynomial rings and semigroup rings

Cited in **2** Documents

Keywords:
polynomial modules; principally quasi-Baer modules; skew power series modules; skew Laurent series modules; semicentral idempotents; ACC on left annihilator ideals

Full Text: DOI

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Habibi, M.; **Moussavi, A.**; **Alhevaz, A.**
The McCoy condition on Ore extensions. (English) Zbl 1269.16019
Commun. Algebra 41, No. 1, 124-141 (2013).

Extending the results of a large number of papers on the McCoy property for skew polynomial rings, the authors study a version of the McCoy property for general Ore extensions. We recall that letting R be a ring, α be an endomorphism of R, and δ be a left α-derivation of R (so δ is an additive map satisfying $\delta(ab) = \delta(a)b + \alpha(a)\delta(b)$), the general (left) Ore extension $R[x; \alpha, \delta]$ is the ring of polynomials over R

in the variable x, with termwise addition and with coefficients written on the left of x, subject to the skew-multiplication rule $xr = \alpha(r)x + \delta(r)$ for $r \in R$.

The authors call R an '(α, δ)-skew McCoy ring' when, for each pair of elements $f, g \in S = R[x; \alpha, \delta] \setminus \{0\}$ satisfying $fg = 0$, there exists some $c \in R \setminus \{0\}$ with $fc = 0$. The reader should keep in mind that this definition is not a left-right symmetric notion on two levels: first, in the choice of S as a left Ore extension, and second, in the choice of f over g.

The authors prove that this property is preserved under a number of ring extensions. In particular, it passes to certain subrings of the (skew-)upper triangular matrix rings and to (two-sided) classical rings of quotients. They also prove that reversible, α-compatible, δ-compatible rings are (α, δ)-skew McCoy, where α-compatibility means "$ab = 0$ if and only if $a\alpha(b) = 0$, for $a, b \in R$", and δ-compatibility means "$ab = 0$ implies $a\delta(b) = 0$, for $a, b \in R$."

There is one typographical error which bears mentioning, which occurs on page 128 (and again on page 137). When extending the α-derivation δ to the classical ring of quotients, the authors should instead write $\overline{\delta}(rc^{-1}) = (\delta(r) - \alpha(r)\alpha(c)^{-1}\delta(c))c^{-1}$. Propitiously, the results which used the incorrect formula seem to still hold true.

Reviewer: Pace Nielsen (Provo)

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings
16U80 Generalizations of commutativity (associative rings and algebras)

Keywords:

skew polynomial rings; Ore extensions; skew McCoy rings; ring extensions; reversible rings; semicommutative rings; zip rings

Full Text: DOI

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Alhevaz, A.; **Moussavi, A.**; **Hashemi, E.**
Nilpotent elements and skew polynomial rings. (English) Zbl 1298.16024
Algebra Colloq. 19, Spec. Iss. 1, 821-840 (2012).

MSC:

16U80 Generalizations of commutativity (associative rings and algebras)
16N40 Nil and nilpotent radicals, sets, ideals, associative rings
16S36 Ordinary and skew polynomial rings and semigroup rings
16P60 Chain conditions on annihilators and summands: Goldie-type conditions
16W20 Automorphisms and endomorphisms

Cited in **1** Document

Keywords:

semicommutative rings; skew polynomial rings; nilpotent elements; nil-Armendariz rings; skew triangular matrix rings

Full Text: DOI

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Alhevaz, A.; **Moussavi, A.**

On skew Armendariz and skew quasi-Armendariz modules. (English) Zbl 1278.16029

Bull. Iran. Math. Soc. 38, No. 1, 55-84 (2012).

Summary: Let α be an endomorphism and δ an α-derivation of a ring R. In this paper we study the relationship between an R-module M_R and the general polynomial module $M[x]$ over the skew polynomial ring $R[x;\alpha,\delta]$. We introduce the notions of skew-Armendariz modules and skew quasi-Armendariz modules which are generalizations of α-Armendariz modules and extend the classes of non-reduced skew-Armendariz modules. An equivalent characterization of an α-skew Armendariz module is given. Some properties of this generalization are established, and connections of properties of a skew-Armendariz module M_R with those of $M[x]_{R[x;\alpha,\delta]}$ are investigated. As a consequence we extend and unify several known results related to Armendariz modules.

MSC:

Cited in **5** Documents

16S36 Ordinary and skew polynomial rings and semigroup rings
16P60 Chain conditions on annihilators and summands: Goldie-type conditions
16W20 Automorphisms and endomorphisms
16U80 Generalizations of commutativity (associative rings and algebras)
16E50 von Neumann regular rings and generalizations (associative algebraic aspects)

Keywords:

skew polynomial rings; Baer modules; quasi-Baer modules; skew-Armendariz modules; skew quasi-Armendariz modules

Habibi, M.; **Moussavi, A.**; **Mokhtari, S.**

On skew Armendariz of Laurent series type rings. (English) Zbl 1276.16039

Commun. Algebra 40, No. 11, 3999-4018 (2012).

The authors of this paper introduce the notion of α-Armendariz of Laurent series type ring (or simply, α-LA ring). Let α be an automorphism of a ring R. R is called an α-LA ring if for each $f(x)=\sum_{i=-m}^{\infty} a_i x^i$ and $g(x)=\sum_{j=-n}^{\infty} b_j x^j \in R[[x,x^{-1};\alpha]]$, $f(x)g(x)=0$ implies that $a_i\alpha^i(b_j)=0$ for any $i\geq -m$ and $j\geq -n$. This notion is a generalization of α-skew Armendariz ring to the skew Laurent series type ring over associative ring with unity.

This paper is devoted to the study of properties of α-LA rings. In particular, the following main results are obtained: • There exists an example of an Armendariz ring R with an automorphism α which is not α-LA ring. • Let α be an automorphism of a ring R. Then R is α-rigid iff R is reduced and α-LA ring. • Let R be an α-LA ring. Then R is a Baer ring iff $R[[x,x^{-1};\alpha]]$ is a Baer ring. • Let R be an α-LA ring. Then $R[[x,x^{-1};\alpha]]$ is a left p.p.-ring iff R is a left p.p.-left ring and every countable family of idempotents of R has a generalized join in the set of all idempotent elements of R. • There are various types of examples of skew Armendariz of Laurent series type rings, extending the class of skew Armendariz of Laurent series type rings to non-semiprime rings.

Reviewer: Anna Kuzmina (Barnaul)

MSC:

16W60 Valuations, completions, formal power series and related constructions (associative rings and algebras)
16S36 Ordinary and skew polynomial rings and semigroup rings
16P60 Chain conditions on annihilators and summands: Goldie-type conditions
16N40 Nil and nilpotent radicals, sets, ideals, associative rings

Keywords:

Armendariz rings; skew Laurent series rings; Baer rings; weakly rigid rings

Full Text: DOI

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Mohammadi, R.; Moussavi, A.; Zahiri, M.
On weak zip skew polynomial rings. (English) Zbl 1267.16026
Asian-Eur. J. Math. 5, No. 3, Paper No. 1250039, 17 p. (2012).

Let R be a ring with 1, α an endomorphism of R, δ an α-derivation of R, and $R[x;\alpha,\delta]$ the Ore extension of R. Let $\mathrm{nil}(R)$ be the set of all nilpotent elements of R. Then R is called nil α-compatible if for any $a,b\in\mathrm{nil}(R)$, $ab=0$ if and only if $a\alpha(b)=0$, and nil δ-compatible if $ab=0$ implies $a\delta(b)=0$. If R is both nil α-compatible and nil δ-compatible, then R is called nil (α,δ)-compatible.

It is shown that for a nil (α,δ)-compatible ring R, $\alpha(\mathrm{nil}(R))\subseteq\mathrm{nil}(R)$ and $\delta(\mathrm{nil}(R))\subseteq\mathrm{nil}(R)$. There exists a nil (α,δ)-compatible but not (α,δ)-compatible ring.

A ring R is called α-weakly rigid if for $a \in R$, $a\alpha^k(a) \in \mathrm{nil}(R)$ implies $a \in \mathrm{nil}(R)$ for any positive k, and R is said to have quasi-IFP if any $\sum_{i=0}^n a_i x^i \in \mathrm{nil}(R[x])$ implies $\sum_i Ra_iR \subset \mathrm{nil}(R)$. A ring R is said to satisfy the (α,δ)-condition if R is α-weakly rigid and nil (α,δ)-compatible.

The authors show that if R has quasi-IFP and satisfies the (α,δ)-condition; then, R is a right (respectively, left) weak zip ring if and only if so is $R[x;\alpha,\delta]$, where a weak zip ring is defined by *L. Ouyang*, [Glasg. Math. J. 51, No. 3, 525-537 (2009; Zbl 1186.16017)].

Reviewer: George Szeto (Peoria)

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings
16N40 Nil and nilpotent radicals, sets, ideals, associative rings
16U80 Generalizations of commutativity (associative rings and algebras)
16W20 Automorphisms and endomorphisms
16E50 von Neumann regular rings and generalizations (associative algebraic aspects)

Keywords:

Ore extensions; skew polynomial rings; nilpotent elements; nil-compatible rings; right weak zip rings; quasi-IFP rings

Full Text: DOI

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Mohammadi, R.; **Moussavi, A.**; **Zahiri, M.**
On nil-semicommutative rings. (English) Zbl 1253.16024
Int. Electron. J. Algebra 11, 20-37 (2012).

Summary: Semicommutative and Armendariz rings are a generalization of reduced rings, and therefore,

nilpotent elements play an important role in this class of rings. There are many examples of rings with nilpotent elements which are semicommutative or Armendariz. In fact, [in Commun. Algebra 26, No. 7, 2265-2272 (1998; Zbl 0915.13001)], *D. D. Anderson* and *V. Camillo* prove that if R is a ring and $n \geq 2$, then $R[x]/(x^n)$ is Armendariz if and only if R is reduced.

In order to give a noncommutative generalization of the results of Anderson and Camillo, we introduce the notion of nil-semicommutative rings which is a generalization of semicommutative rings. If R is a nil-semicommutative ring, then we prove that $ni\ell(R[x]) = ni\ell(R)[x]$. It is also shown that nil-semicommutative rings are 2-primal, and when R is a nil-semicommutative ring, then the polynomial ring $R[x]$ over R and the rings $R[x]/(x^n)$ are weak Armendariz, for each positive integer n, generalizing related results of *Z.-K. Liu* and *R.-Y. Zhao*, [Commun. Algebra 34, No. 7, 2607-2616 (2006; Zbl 1110.16026)].

MSC:

16S36	Ordinary and skew polynomial rings and semigroup rings	Cited in **4** Documents
16N40	Nil and nilpotent radicals, sets, ideals, associative rings	
16U80	Generalizations of commutativity (associative rings and algebras)	
16W20	Automorphisms and endomorphisms	
16E50	von Neumann regular rings and generalizations (associative algebraic aspects)	

Keywords:

semicommutative rings; Armendariz rings; reduced rings; nilpotent elements; nil-semicommutative rings; polynomial rings

Full Text: Link

Habibi, M.; **Moussavi, A.**
On nil skew Armendariz rings. (English) Zbl 1263.16028
Asian-Eur. J. Math. 5, No. 2, 1250017, 16 p. (2012).

Let R be a ring with 1, α an endomorphism, δ an α-derivation of R, and $R[x;\alpha,\delta]$ the Ore extension of R. Then R is called nil (α,δ)-skew Armendariz if for $f(x)=\sum_{i=0}^m a_i x^i$ and $g(x)=\sum_{j=0}^n b_j x^j \in R[x;\alpha,\delta]$, $f(x)g(x) \in \mathrm{nil}(R)[x;\alpha,\delta]$ implies $a_i x^i b_j x^j \in \mathrm{nil}(R)[x;\alpha,\delta]$ for each i and j where $\mathrm{nil}(R)$ is the set of nilpotent elements of R. In particular, a nil $(id_R,0)$-skew Armendariz ring is a nil-Armendariz ring. The authors show some conditions for R under which R is nil (α,δ)-skew Armendariz.

Theorem 1. Let R be α-compatible (i.e., for $a,b \in R$, $ab=0$ if and only if $a\alpha(b)=0$) and $\mathrm{nil}(R)$ is an ideal, then R is nil (α,δ)-skew Armendariz.

Theorem 2. If R is α-compatible and α-skew Armendariz, then R is nil $(\alpha,0)$-skew Armendariz.

Theorem 3. Let R be (α,δ)-compatible (i.e., R is both α- and δ-compatible as defined similarly above) and $\mathrm{nil}(R)$ is a subring. Then, R is nil (α,δ)-skew Armendariz if and only if $R/\mathrm{Nil}^*(R)$ is $(\overline{\alpha},\overline{\delta})$-skew Armendariz where $\mathrm{Nil}^*(R)$ is the upper nil-radical of R, and $\overline{\alpha}$ and $\overline{\delta}$ are induced by α and δ, respectively.

Moreover, a nil (α,δ)-skew Armendariz ring R is characterized in terms of $R[x]$ and some subrings of the skew triangular matrix ring $T_n(R,\sigma)$ where σ is an endomorphism of R, and for all $i \leq j$, $(a_{ij}),(b_{ij}) \in T_n(R,\sigma)$, $(a_{ij})(b_{ij})=(c_{ij})$, such that $c_{ij}=\sum_{k=0}^{j-i} a_{i(i+k)}\sigma^k b_{(i+k)j}$.

Reviewer: George Szeto (Peoria)

MSC:

16S36	Ordinary and skew polynomial rings and semigroup rings	Cited in **7** Documents
16N40	Nil and nilpotent radicals, sets, ideals, associative rings	

Keywords:

nil-Armendariz rings; NI rings; 2-primal rings; nilpotent elements; Ore extensions

Full Text: DOI

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Habibi, M.; **Moussavi, A.**
Nilpotent elements and nil-Armendariz property of monoid rings. (English) Zbl 1282.16032
J. Algebra Appl. 11, No. 4, Article ID 1250080, 14 p. (2012).

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings
16N40 Nil and nilpotent radicals, sets, ideals, associative rings
20M25 Semigroup rings, multiplicative semigroups of rings

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Keywords:

nil Armendariz rings; 2-primal rings; polynomial rings; nilpotent elements; u.p. monoids; monoid rings; nil rings; NI rings

Full Text: DOI

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Alhevaz, A.; **Moussavi, A.**

Annihilator conditions in matrix and skew polynomial rings. (English) Zbl 1259.16032

J. Algebra Appl. 11, No. 4, Article ID 1250079, 26 p. (2012).

Let R be a ring with 1, an endomorphism α of R, and an α-derivation δ. The Ore extension of R, $R[x;\alpha,\delta]$ is called a skew Armendariz ring if for $f(x)=\sum_{i=0}^{n}a_ix^i$, $g(x)=\sum_{j=0}^{m}b_jx^j$, $f(x)g(x)=0$ implies $a_0b_j=0$ for each j. For $n=m=1$, if $f(x)g(x)=0$ implies $a_0b_1=a_1b_0=0$, then R is called linearly Armendariz. An α is called compatible if for all $a,b\in R$, $ab=0$ if and only if $a\alpha(b)=0$; and R is called α compatible if R has a compatible α. If $ab=0$ implies $a\delta(b)=0$, then R is called δ compatible; and R is (α,δ) compatible if it is both α and δ compatible.

Let R be an α compatible linearly skew Armendariz ring. The authors show that the following radicals of R are the same: $N_0(R)=\mathrm{Nil}_*(R)=\text{L-rad}(R)=\mathrm{Nil}^*(R)=A(R)$ where $N_0(R)$ is the Wedderburn radical of R, $\mathrm{Nil}_*(R)$ the lower nil radical, L-rad(R) the Levitzki radical, $\mathrm{Nil}^*(R)$ the upper nil radical, and $A(R)$ the sum of all nil left ideals of R. Also $J(R[x;\alpha,\delta])\cap R$ is a nil ideal of R where $J(R[x;\alpha,\delta])$ is the Jacobson radical of $R[x;\alpha,\delta]$. Moreover, the above equations of radicals also hold for $R[x;\alpha,\delta]$ over an α compatible skew Armendariz ring R.

Let $T_n(R)$ be the upper triangular matrix ring of order n for some integer n over R with the extended endomorphism α from R and the extended derivation δ. Then there exists a linearly skew Armendariz ring R such that $T_n(R)$ is not linearly skew Armendariz. The authors show some maximal skew Armendariz subrings of $T_n(R)$ over an α rigid and reduced ring R where α is a monomorphism and δ is an α-derivation of R.

Reviewer: George Szeto (Peoria)

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings
16N80 General radicals and associative rings
16S50 Endomorphism rings; matrix rings
16P60 Chain conditions on annihilators and summands: Goldie-type conditions

Keywords:

skew Armendariz rings; skew polynomial rings; radicals; Jacobson radical; zip rings; rigid rings; upper triangular matrix rings

Full Text: DOI

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Nasr-Isfahani, A. R.; **Moussavi, A.**
A generalization of reduced rings. (English) Zbl 1259.16033
J. Algebra Appl. 11, No. 4, Article ID 1250070, 30 p. (2012).

Let R be a ring with 1, δ a derivation of R and $R[x;\delta]$ the differential polynomial ring with the usual addition and multiplication such that $xa = ax + \delta(a)$ for all $a \in R$. Then R is called a δ-Armendariz ring if for each $f(x) = \sum_{i=0}^{n} a_i x^i$, $g(x) = \sum_{j=0}^{m} b_j x^j \in R[x;\delta]$, $f(x)g(x) = 0$ implies $a_i \delta^i(b_j) = 0$ for all i, j. A ring R is called weak δ-Armendariz if the above condition holds for $n = m = 1$. Then the authors show some properties of the radicals of R and relations between R and $R[x;\delta]$ for a weak δ-Armendariz ring R.

Theorem 1. Let $N_0(R)$, $\mathrm{Nil}_*(R)$, $\text{L-rad}(R)$, $\mathrm{Nil}^*(R)$ be the Wedderburn, lower nil, Levitzky, and upper nil radical, respectively. If R is weak δ-Armendariz, then

(1) the above radicals are equal; and

(2) let $J(R[x;\delta])$ be the Jacobson radical of $R[x;\delta]$. Then $J(R[x;\delta]) \cap R$ is a nil ideal of R.

If R is δ-Armendariz, then the above radicals of $R[x;\delta]$ are equal.

Theorem 2. Let R be a δ-Armendariz ring. Then R is reversible (resp. symmetric, δ-quasi Baer, δ-Baer, p.p.-Baer) if and only if so is $R[x;\delta]$ (resp. symmetric, δ-quasi Baer, δ-Baer, p.p.-Baer). Moreover, a reduced ring R with a δ is characterized in terms of some differential Armendariz matrix rings. Also an Ore ring R with a δ which is a (weak) δ-Armendariz ring is characterized in terms of the (weak) differential classical left quotient ring of R where the derivation is induced by δ of R.

Reviewer: George Szeto (Peoria)

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings
16N80 General radicals and associative rings
16N20 Jacobson radical, quasimultiplication
16N40 Nil and nilpotent radicals, sets, ideals, associative rings
16P60 Chain conditions on annihilators and summands: Goldie-type conditions

Keywords:

differential polynomial rings; radicals; Jacobson radical; prime radical; 2-primal rings; Baer rings; Armendariz rings

Full Text: DOI

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Alhevaz, A.; **Moussavi, A.**; **Habibi, M.**
On rings having McCoy-like conditions. (English) Zbl 1260.16024
Commun. Algebra 40, No. 4, 1195-1221 (2012).

Summary: In [J. Algebra 298, No. 1, 134-141 (2006; Zbl 1110.16036)], *P. P. Nielsen* proves that all reversible rings are McCoy and gives an example of a semicommutative ring that is not right McCoy. At the same time, he also shows that semicommutative rings do have a property close to the McCoy condition. In this article we study weak McCoy rings as a common generalization of McCoy rings and weak Armendariz rings. Relations between the weak McCoy property and other standard ring theoretic properties are considered. We also study the weak skew McCoy condition, a generalization of the standard weak McCoy condition from polynomials to skew polynomial rings. We resolve the structure of weak skew McCoy rings and obtain various necessary or sufficient conditions for a ring to be weak skew McCoy, unifying and generalizing a number of known McCoy-like conditions in the special cases. Constructing various examples, we classify how the weak McCoy property behaves under various ring extensions. As a consequence we extend and unify several known results related to McCoy rings and Armendariz rings [*M. Başer, T. K. Kwak* and *Y. Lee*, Commun. Algebra 37, No. 11, 4026-4037 (2009; Zbl 1187.16027); *Z.-K. Liu* and *R.-Y. Zhao*, Commun. Algebra 34, No. 7, 2607-2616 (2006; Zbl 1110.16026); *A. Moussavi* and *E. Hashemi*, J. Korean Math. Soc. 42, No. 2, 353-363 (2005; Zbl 1090.16012); *L.-Q. Ouyang*, Glasg. Math. J. 51, No. 3, 525-537 (2009; Zbl 1186.16017); *C.-P. Zhang* and *J.-L. Chen*, J. Korean Math. Soc.

47, No. 3, 455-466 (2010; Zbl 1191.16026)].

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings

16U80 Generalizations of commutativity (associative rings and algebras)

16D70 Structure and classification for modules, bimodules and ideals (except as in 16Gxx), direct sum decomposition and cancellation in associative algebras)

Cited in **15** Documents

Keywords:

monoid rings; semicommutative rings; skew polynomial rings; weak Armendariz rings; weak McCoy rings; weak zip rings; reversible rings

Full Text: DOI

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Manaviyat, R.; Moussavi, A.; Habibi, M.
Pseudo-differential operator rings with Armendariz-like condition. (English) Zbl 1266.16020
Commun. Algebra 40, No. 3, 1103-1115 (2012).

The algebras of pseudo-differential operators have been introduced by Schur and Tuganbaev studied their ring-theoretical properties. In the present paper the authors study special types of pseudo-differential operator rings. These rings are specified by a weaker condition than Armendariz property as follows. A ring R with derivation δ is said to be an Armendariz ring of pseudo-differential operator type (or simply $\mathcal{DO}$-Armendariz) if for each $f(x)=\sum_{i=-\infty}^{m} a_ix^i$ and $g(x)=\sum_{j=-\infty}^{n} b_jx^j$ from $R((x^{-1},\delta))$ the condition $f(x)g(x)=0$ implies $a_0b_j=0$, for all $j\leq n$.

The first result given in the paper is a criterion for a ring with a derivation to be an Armendariz ring of pseudo-differential operator type. It is shown that any reduced ring with derivation is a $\mathcal{DO}$-Armendariz ring.

Then the authors define a linear Armendariz ring of pseudo-differential operator type (or simply linear $\mathcal{DO}$-Armendariz ring). The definition is as follows. A ring R with derivation δ is called a linear $\mathcal{DO}$-Armendariz if for each $f(x)=a_{-1}x^{-1}+a_0$ and $g(x)=b_{-1}x^{-1}+a_0$ from $R((x^{-1},\delta))$ the condition $f(x)g(x)=0$ implies $a_0b_0=a_0b_1=0$. The authors give a criterion for a ring with derivation δ to be linear $\mathcal{DO}$-Armendariz.

The further study is related to the $\mathcal{DO}$-Armendarizity and "radical" properties of a ring. They prove that if R is a $\mathcal{DO}$-Armendariz ring then

$$N_0(R)=\mathrm{Nil}_*(R)=\text{L-rad}(R)=\mathrm{Nil}^*(R)$$

and for $S=R((x^{-1},\delta))$ one has

$$N_0(S)=\mathrm{Nil}_*(S)=\text{L-rad}(S)=\mathrm{Nil}^*(S),\quad \mathrm{Nil}_*(R)=\mathrm{Nil}_*(S)\cap R,$$

$$\mathrm{Nil}^*(M_n(R)))=M_n(\mathrm{Nil}^*(R))),\quad \mathrm{Nil}^*(M_n(S))=M_n(\mathrm{Nil}^*(S)),$$

$$J(R[x])=\mathrm{Nil}^*(R)[x],\quad J(S[y])=\mathrm{Nil}^*(S)[y],$$

where $N_0(R)$ is the Wedderburn radical, $\mathrm{Nil}_*(R)$ and $\mathrm{Nil}^*(R)$ are the lower and upper nil radical of R, respectively, L-rad(R) is the Levitzky radical, and $J(R)$ is the Jacobson radical of R.

In the last section of the paper the authors treat the $\mathcal{DO}$-Armendariz properties on examples of subrings of the upper triangular matrices over a ring with derivation.

Reviewer: Isamiddin Rakhimov (Serdang)

MSC:

16S32	Rings of differential operators (associative algebraic aspects)	Cited in **4** Documents
16W60	Valuations, completions, formal power series and related constructions (associative rings and algebras)	
16S36	Ordinary and skew polynomial rings and semigroup rings	
16N80	General radicals and associative rings	
16N40	Nil and nilpotent radicals, sets, ideals, associative rings	
16W25	Derivations, actions of Lie algebras	

Keywords:

Armendariz-like rings; pseudo-differential operator rings; radicals; Levitzky radical; nil radical; rings with derivations

Full Text: DOI

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Manaviyat, R.; Moussavi, A.; Habibi, M.

On skew inverse Laurent-serieswise Armendariz rings. (English) Zbl 1261.16045

Commun. Algebra 40, No. 1, 138-156 (2012).

Assume R is an associative ring with identity and α is a ring automorphism of R. Denote $R((x^{-1};\alpha))$, the ring of formal skew Laurent series in x^{-1}, whose elements are of the form $\sum_{i=-\infty}^{n} a_i x^i$, with usual addition and multiplication subject to the rule $x^i a = \alpha^i(a)x^i$ for each i. A ring R is said to be skew inverse Laurent-serieswise Armendariz (or simply, SIL-Armendariz), if for each $f(x) = \sum_{i=-\infty}^{n} a_i x^i$ and $g(x) = \sum_{j=-\infty}^{m} b_j x^j$ in $R((x^{-1};\alpha))$, $f(x)g(x) = 0$ implies that $a_i\alpha^i(b_j) = 0$ for each $i \leq n$ and $j \leq m$.

The authors study in this paper relations between the set of annihilators in R and the set of annihilators in $R((x^{-1};\alpha))$. Also they study some properties of a SIL-Armendariz ring R such as the Baer and α-quasi Baer property transfer to its skew inverse Laurent series extensions $R((x^{-1};\alpha))$ and vice versa.

Reviewer: J. K. Park (Pusan)

MSC:

16W60 Valuations, completions, formal power series and related constructions (associative rings and algebras)
16S36 Ordinary and skew polynomial rings and semigroup rings
16P60 Chain conditions on annihilators and summands: Goldie-type conditions

Keywords:

Laurent-serieswise Armendariz rings; principally quasi-Baer rings; skew inverse Laurent series rings; rings of formal skew Laurent series; SIL-Armendariz rings; annihilators

Full Text: DOI

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Moussavi, A.; **Omit, S.**; **Ahmadi, Ali**
A note on nilpotent lattice matrices. (English) Zbl 1235.15020
Int. J. Algebra 5, No. 1-4, 83-89 (2011).

Authors' abstract: Some properties and characterizations for nilpotent matrices are established and in particular, a necessary and sufficient condition for an $n \times n$ nilpotent matrix to have the nilpotent index 2 and 3 is given.

Reviewer: Grozio Stanilov (Sofia)

MSC:

15B33 Matrices over special rings (quaternions, finite fields, etc.)
06D99 Distributive lattices

Cited in **1** Document

Keywords:

distributive lattice; matrix powers; nilpotent matrices

Full Text: Link

Moussavi, A.; **Keshavarz, F.**; **Rasuli, M.**; **Alhevaz, A.**
Weak Armendariz skew polynomial rings. (English) Zbl 1239.16029
Int. J. Algebra 5, No. 1-4, 71-81 (2011).

Let R be a ring with 1, α an endomorphism of R, $R[x]$ the polynomial ring with indeterminate x, and $R[x,\alpha]$ the skew polynomial ring. Then R is called α-weak Armendariz (resp., α-skew weak Armendariz) if for $f(x) = \sum_{i=0}^{m} a_i x^i$ and $g(x) = \sum_{j=0}^{n} a_j x^j \in R[x,\alpha]$, $f(x)g(x) = 0$, then $a_i b_j \in \mathrm{nil}(R)$ (resp., $a_i \alpha^i(b_j) \in \mathrm{nil}(R)$) for all i, j, where $\mathrm{nil}(R)$ is the set of the nilpotent elements of R. An α-skew weak Armendariz ring is a generalization of a weak Armendariz ring.

Theorem. The following statements are equivalent: (1) R is α-weak Armendariz, (2) the ring of upper triangular matrices $T_n(R)$ over R of order n is $\overline{\alpha}$-weak Armendariz, (3) the quotient ring $R[x]/\langle x^n \rangle$ is $\overline{\alpha}$-weak Armendariz, for any n, where $\overline{\alpha}$ is induced by α in a natural way.

Moreover, relationships are also given between an α-weak Armendariz ring and other classes of rings such as semicommutative rings, and α-compatible rings.

Reviewer: George Szeto (Peoria)

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings
16W20 Automorphisms and endomorphisms
16U80 Generalizations of commutativity (associative rings and algebras)

Cited in **1** Document

Keywords:

weak Armendariz rings; semicommutative rings; α-compatible rings; skew polynomial rings

Full Text: Link

Nasr-Isfahani, Alireza; **Moussavi, Ahmad**
On skew power serieswise Armendariz rings. (English) Zbl 1241.16029
Commun. Algebra 39, No. 9, 3114-3132 (2011).

Let R be a ring with 1, α an endomorphism of R, $R[x;\alpha]$ a skew polynomial ring. Then R is called

α-Armendariz if for $f(x)=\sum_{i=0}^{m} a_ix^i$ and $g(x)=\sum_{j=0}^{n} a_jx^j \in R[x,\alpha]$, $f(x)g(x)=0$ implies $a_ib_j=0$ for all i,j.

If $a\alpha(a)=0$ implies $a=0$ for $a\in R$, then α is called rigid, and R is called α-rigid if there exists a rigid α. Let $R[[x;\alpha]]$ be a skew power series ring. Then R is called skew power serieswise Armendariz (SPA) if for $f(x)=\sum a_ix^i$ and $g(x)=\sum a_jx^j \in R[[x,\alpha]]$, $f(x)g(x)=0$ implies $a_ib_j=0$ for all i,j. An α-Armendariz and an α-rigid ring are SPA-rings.

Let $N_0(R)$ be the Wedderburn radical, $\mathrm{Nil}_*(R)$ be the lower nil radical, L-rad(R) the Levitzky radical, $\mathrm{Nil}^*(R)$ be the upper nil radical, $J(R)$ the Jacobson radical and $\mathrm{Nil}(R)$ is the set of all nilpotent elements of R. If R is an SPA-ring, then the above radicals of R are the same.

Let S be one of $R[x,x^{-1};\alpha]$ (the skew Laurent-series ring), $R[[x,x^{-1};\alpha]]$ (the skew Laurent power-series ring), $R[x;\alpha]$, and $R[[x;\alpha]]$. Then $N_0(S)=N_0(R)S=\mathrm{Nil}_*(S)=\mathrm{Nil}_*(R)S=\text{L-rad}(S)=\text{L-rad}(R)S=\mathrm{Nil}^*(S)=\mathrm{Nil}(R)S=\mathrm{Nil}(S)=\mathrm{Nil}(R)S$.

In particular, in case α is an automorphism, S satisfies the Köhte conjecture. Moreover, let R be an SPA-ring. Then a reversible, Baer, quasi-Baer and other kinds of rings R are characterized in terms of $R[x;\alpha]$, $R[x,x^{-1};\alpha]$ and $R[[x;\alpha]]$. Examples of nonreduced SPA-rings are also given.

Reviewer: George Szeto (Peoria)

MSC:

16W60 Valuations, completions, formal power series and related constructions (associative rings and algebras)
16S36 Ordinary and skew polynomial rings and semigroup rings
16N80 General radicals and associative rings
16P60 Chain conditions on annihilators and summands: Goldie-type conditions

Cited in **5** Documents

Keywords:

Armendariz rings; Baer rings; Jacobson radical; skew polynomial rings; skew power series rings; SPA-rings

Full Text: DOI

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Mohammadi, R.; **Moussavi, A.**; **Zahiri, M.**

Weak McCoy Ore extensions. (English) Zbl 1230.16025

Int. Math. Forum 6, No. 1-4, 75-86 (2011).

Summary: A ring R is called nil-semicommutative if for every $a, b \in \text{nil}(R)$, $ab = 0$ implies $aRb = 0$. *P. P. Nielsen* [in J. Algebra 298, No. 1, 134-141 (2006; Zbl 1110.16036)] proves that reversible rings are McCoy and gives an example of a semicommutative ring which is not right McCoy. At the same time, he also shows that semicommutative rings do have a property close to the McCoy condition. According to *Sh. Ghalandarzadeh* and *M. Khoramdel* [Thai J. Math. 6, No. 2, 337-342 (2008; Zbl 1193.16028)] and *L. Ouyang* and *H. Chen* [Extensions of weak McCoy rings, preprint], a ring R is said to be right weak McCoy if the equation $f(x)g(x) = 0$, where $f(x) = \sum_{i=0}^{m} a_i x^i, g(x) = \sum_{j=0}^{n} b_j x^j \in R[x] \setminus \{0\}$, implies that there exists $s \in R \setminus \{0\}$ such that $a_i s \in \text{nil}(R)$ for all $0 \leq i \leq m$. Weak McCoy rings are a common generalization of Mc-Coy rings and semicommutative rings. For every ring R, the n-by-n upper triangular matrix ring $T_n(R)$ is weak McCoy.

For each nil-semicommutative ring R, we prove that, if R is α-compatible then $R[x; \alpha]$ is weak McCoy and when R is δ-compatible then $R[x; \delta]$ is weak McCoy.

MSC:

16S36	Ordinary and skew polynomial rings and semigroup rings
16N40	Nil and nilpotent radicals, sets, ideals, associative rings
16U80	Generalizations of commutativity (associative rings and algebras)
16W20	Automorphisms and endomorphisms
16S50	Endomorphism rings; matrix rings

Keywords:

Ore extensions; nil-semicommutative rings; weak McCoy rings; reversible rings

Full Text: Link

Mokhtari, S.; **Kordi, A.**; **Moussavi, A.**; **Ahmadi, A.**

On LI-ideals of lattice implication algebras. (English) Zbl 1382.03087

J. Math. Appl. 32, 67-74 (2010).

Summary: We introduce the notions of a positive implicative LI-ideal and an associative LI-ideal in a lattice implication algebra and discuss some of their properties. Connections to related classes are

investigated and equivalent conditions for both a positive implicative LI-ideal and an associative LI-ideal are provided.

MSC:

03G25 Other algebras related to logic
06B10 Lattice ideals, congruence relations

Cited in **1** Document

Alhevaz, A.; **Moussavi, A.**
Weak McCoy rings relative to a monoid. (English) Zbl 1218.16032
Int. Math. Forum 5, No. 45-48, 2341-2350 (2010).

Summary: *P. P. Nielsen* [in J. Algebra 298, No. 1, 134-141 (2006; Zbl 1110.16036)] proves that reversible rings are McCoy and gives an example of a semi-commutative ring that is not right McCoy. At the same time, he also shows that semi-commutative rings do have a property close to the McCoy condition. For a monoid M, we introduce weak M-McCoy rings, which are a generalization of McCoy rings and M-Armendariz rings, and we investigate their properties. Every semicommutative ring is weak M-McCoy for any unique product monoid and any strictly totally ordered monoid M. Moreover, we prove that for an ideal I of R, if I is semi-commutative and R/I is weak M-Armendariz, then R is weak M-McCoy for any strictly totally ordered monoid M. We show that for any nonzero ring R and any monoid M, the n-by-n upper triangular matrix ring $T_n(R)$ and the ring $R[x]/\langle x^n\rangle$, where $\langle x_n\rangle$ is the ideal generated by x^n and n is a positive integer, are weak M-McCoy. Finally we construct various examples of weak McCoy rings by reviewing and extending some results concerning the structure of nilpotent elements of a ring R.

MSC:

16U80 Generalizations of commutativity (associative rings and algebras)
16S36 Ordinary and skew polynomial rings and semigroup rings
20M25 Semigroup rings, multiplicative semigroups of rings
16S50 Endomorphism rings; matrix rings
16E50 von Neumann regular rings and generalizations (associative algebraic aspects)

Cited in **1** Document

Keywords:

semi-commutative rings; unique product monoids; weak McCoy rings; reversible rings; Armendariz rings; triangular matrix rings

Full Text: Link

Alhevaz, A.; **Moussavi, A.**
On α-skew quasi Armendariz modules. (English) Zbl 1219.16025
Int. Math. Forum 5, No. 45-48, 2331-2340 (2010).

Summary: Let R be a ring and α be a ring endomorphism of R. We introduce α-skew quasi-Armendariz modules as a generalization of quasi-Armendariz rings and modules. Some properties of this generalization and the relationship between an R-module M_R and the general polynomial module $M[x]$ over the skew polynomial ring $R[x;\alpha]$ are established. Among other results, we show that there is a strong connection of the Baer, quasi-Baer and the p.p.-property of the two modules, respectively. As a consequence we extend and unify several known results.

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings
16W20 Automorphisms and endomorphisms
16P60 Chain conditions on annihilators and summands: Goldie-type conditions

Keywords:

polynomial modules; skew polynomial rings; Baer modules; quasi-Baer modules; skew quasi-Armendariz modules; quasi-Armendariz rings

Full Text: Link

Alimoradi, M. R.; **Kordi, A.**; **Moussavi, A.**; **Ahmadi, A.**
Soft sets and soft rings. (English) Zbl 1209.16038
Int. J. Appl. Math. 23, No. 4, 583-595 (2010).

Summary: *D. Molodtsov* [Comput. Math. Appl. 37, No. 4-5, 19-31 (1999; Zbl 0936.03049)] introduced the concept of soft set theory, which can be used as a generic mathematical tool for dealing with uncertainty. In this paper we introduce the basic properties of soft sets, and compare soft sets to the related concepts of fuzzy sets and rough sets. We then give a definition of soft rings, and derive their basic properties using Molodtsov's definition of the soft sets.

MSC:

16Y99 Generalizations
03E72 Theory of fuzzy sets, etc.

Keywords:

soft sets; soft rings; soft ideals; fuzzy sets; rough sets

Habibi, M.; **Moussavi, A.**; **Manaviyat, R.**
On skew quasi-Baer rings. (English) Zbl 1213.16016
Commun. Algebra 38, No. 10, 3637-3648 (2010).

Let R be a ring with 1, $\alpha\colon R \to R$ a monomorphism, δ an α-derivation of R, and $R[x;\alpha,\delta]$ the Ore extension of R. An ideal I of R is called an α-ideal (resp., α-invariant ideal) if $\alpha(I) \subset I$ (resp., $\alpha(I) = I$), I is called a δ-ideal if $\delta(I) \subset I$, and I is called an (α,δ)-ideal (resp., (α,δ)-invariant ideal) if I is both an α-ideal (resp., α-invariant ideal) and a δ-ideal. A ring R is a δ-quasi Baer (resp., α-quasi Baer) if the right annihilator of every δ-ideal (resp., α-ideal) is generated by an idempotent, and R is an (α,δ)-Baer (resp., (α,δ)-quasi Baer) if the right annihilator of every nonempty (α,δ)-subset (resp., (α,δ)-ideal) is generated, as a right ideal, by an idempotent.

Then the authors characterize the classes of (α,δ)-quasi Baer, (α,δ)-Baer, and α-compatible (α,δ)-quasi Baer rings R in terms of their Ore extensions, where a ring R is called α-compatible if for each $a, b \in R$, $ab = 0$ if and only if $a\alpha(b) = 0$.

Theorem 1. Let α be an automorphism such that $\alpha\delta = \delta\alpha$. Then the following are equivalent: (1) R is (α,δ)-quasi Baer; (2) $R[x;\alpha,\delta]$ is α-quasi Baer; (3) $R[x;\alpha,\delta]$ is $(\alpha,\overline{\delta})$-quasi Baer for every extended α-derivation $\overline{\delta}$ on $R[x;\alpha,\delta]$ of δ.

Theorem 2. Let R be ring with IFP (i.e., $ab = 0$ implies $aRb = 0$ for $a, b \in R$) and α an automorphism. Then the following are equivalent: (1) R is (α,δ)-Baer; (2) $R[x;\alpha,\delta]$ is α-Baer; (3) $R[x;\alpha,\delta]$ is $(\alpha,\overline{\delta})$-Baer for every extended derivation $\overline{\delta}$ of δ on $R[x;\alpha,\delta]$.

Also, Theorem 2 holds for an α-compatible ring with IFP where α is a monomorphism.

Reviewer: George Szeto (Peoria)

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings
16P60 Chain conditions on annihilators and summands: Goldie-type conditions
16W20 Automorphisms and endomorphisms

Keywords:

skew quasi-Baer rings; skew polynomial rings

Full Text: DOI

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[1] DOI: 10.1017/S1446788700029190 · Zbl 0292.16009 · doi:10.1017/S1446788700029190

[2] DOI: 10.1080/00927878308822865 · Zbl 0505.16004 · doi:10.1080/00927878308822865

[3] DOI: 10.1081/AGB-100001530 · Zbl 0991.16005 · doi:10.1081/AGB-100001530

[4] DOI: 10.1016/S0022-4049(00)00055-4 · Zbl 0987.16018 · doi:10.1016/S0022-4049(00)00055-4

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Manaviyat, R.; **Moussavi, A.**; **Habibi, M.**
Principally quasi-Baer skew power series rings. (English) Zbl 1202.16024
Commun. Algebra 38, No. 6, 2164-2176 (2010).

Let R be a ring with 1. If the right (left) annihilator of a principal right (left) ideal of R is generated by an idempotent, then R is called right (left) principally quasi-Baer (p.q.-Baer). Let α be an endomorphism of R. Then R is called α-compatible if for each $a, b \in R$, $ab = 0$ if and only if $a\alpha(b) = 0$. Denote the skew power series ring by $R[\![x;\alpha]\!]$ and the skill Laurent series ring by $R[\![x, x^{-1};\alpha]\!]$.

An idempotent $e \in R$ is left (right) semicentral if $ere = re$ ($ere = er$) for all $r \in R$, and the set of left (right) semicentral idempotents is denoted by $S^l(R)$ ($S_r(R)$). A set of countable idempotents $\{e_0, e_1, e_2, \dots\}$ of R is said to have a generalized join e if $e = e^2$ such that (i) $e_iR(1-e) = 0$ and (ii) if $d = d^2$ and $e_iR(1-d) = 0$ implies $eR(1-d) = 0$. A set $\{e_0, e_1, e_2, \dots\} \subset S_r(R)$ is said to have a generalized countable join e if, given $a \in R$, there exists $e \in S_r(R)$ such that (i) $e_ie = e_i$ for all $i \geq 1$, and (ii) if $e_ie = e_i$ for all $i \geq 1$, then $ea = e$.

Examples of semiprime p.q.-Baer rings and non-semiprime α-compatible p.q.-Baer rings are given, respectively, such that every countable subset of $S_r(R)$ has a generalized countable join, and a right p.q.-Baer $R[\![x, x^{-1};\alpha]\!]$ is characterized.

Theorem. Let α be an automorphism of R and R be α-compatible. Then $R[\![x, x^{-1};\alpha]\!]$ is right p.q.-Baer if and only if R is right p.q.-Baer and any countable subset of $S_r(R)$ has a generalized countable join. Moreover, it is shown that the above theorem holds when R is α-compatible for an endomorphism α. Similar results are also obtained for $R[\![x;\alpha]\!]$ and $R[\![x]\!]$.

Reviewer: George Szeto (Peoria)

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings
16W60 Valuations, completions, formal power series and related constructions (associative rings and algebras)
16P60 Chain conditions on annihilators and summands: Goldie-type conditions
16W20 Automorphisms and endomorphisms
16E50 von Neumann regular rings and generalizations (associative algebraic aspects)

Keywords:
annihilators; quasi-Baer rings; p.q.-Baer rings; semicentral idempotents; skew power series rings; Laurent series rings

Full Text: DOI

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Kordi, A.; **Moussavi, A.**; **Ahmadi, A.**

Algorithms and computations for (m,n)-fold p-ideals in BCI-algebras. (English)

Zbl 1193.06020
J. Appl. Log. 8, No. 1, 22-32 (2010).

Summary: In [*C. Lele, S. Moutari* and *M. L. N. Mbah*, J. Appl. Log. 6, No. 4, 580–588 (2008; Zbl 1160.06010)], the notion of an n-fold p-ideal in a BCI-algebra was introduced as a generalization of p-ideals in BCI-algebras. Here we show that an ideal is an n-fold p-ideal if and only if it is a p-ideal, and that the results of the mentioned paper are the same as those in [*Y. B. Jun* and *J. Meng*, Math. Jap. 40, No. 2, 271–282 (1994; Zbl 0808.06018)] and [*X. Zhang, H. Jiang* and *S. A. Bhatti*, J. Math., Punjab Univ. 27, 121–128 (1994; Zbl 0866.06007)]. We observe that the notions of (m,n)-fold p-ideals and fuzzy (m,n)-fold p-ideals, for each positive integers m,n, are indeed the natural generalization of p-ideals and fuzzy p-ideals, respectively. A characterization of (m,n)-fold p-ideals and fuzzy (m,n)-fold p-ideals is given, and conditions for an ideal (respectively fuzzy ideal) to be an (m,n)-fold p-ideal (respectively fuzzy (m,n)-fold p-ideal) are studied. We also establish extension properties for (m,n)-fold p-ideals and fuzzy (m,n)-fold p-ideals. Furthermore, we construct some algorithms to determine whether certain finite sets provided with a well-defined operation, are BCI-algebras, (m,n)-fold p-ideals, fuzzy subsets or fuzzy (m,n)-fold p-ideals.

MSC:

06F35 BCK-algebras, BCI-algebras
68W30 Symbolic computation and algebraic computation

Keywords:

BCI-algebra; fuzzy point; p-ideal; fuzzy ideal

Full Text: DOI

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Nasr-Isfahani, A. R.; Moussavi, A.
On a quotient of polynomial rings. (English) Zbl 1200.16038
Commun. Algebra 38, No. 2, 567-575 (2010).

Summary: For a ring R we study the ideal theory of a triangular matrix ring and use it to determine radicals and prime ideals of the ring $R[x]/\langle x^n\rangle$, for each positive integer n, where $R[x]$ is the ring of polynomials in an indeterminant x, and $\langle x^n\rangle$ is the ideal generated by x^n.

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings
16S50 Endomorphism rings; matrix rings
16D25 Ideals in associative algebras
16N80 General radicals and associative rings

Keywords:

Jacobson radical; polynomial rings; triangular matrix rings; prime ideals

Full Text: DOI

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Nasr-Isfahani, A. R.; Moussavi, A.

On Goldie prime ideals of Ore extensions. (English) Zbl 1200.16037

Commun. Algebra 38, No. 1, 1-10 (2010).

Summary: Let R be a ring and α an injective endomorphism of R, which is not assumed to be surjective. Necessary and sufficient conditions are given for all prime ideals in a skew polynomial ring $R[x;\alpha]$ or skew Laurent ring $R[x,x^{-1};\alpha]$ to be left Goldie. As a consequence, we obtain a generalization of a result of *A. Goldie* and *G. Michler* [J. Lond. Math. Soc., II. Ser. 9, 337-345 (1974; Zbl 0294.16019)].

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings
16P60 Chain conditions on annihilators and summands: Goldie-type conditions
16W60 Valuations, completions, formal power series and related constructions (associative rings and algebras)
16D25 Ideals in associative algebras
16N60 Prime and semiprime associative rings

Keywords:

Goldie rings; monomorphisms; Ore extensions; skew polynomial rings; Goldie prime ideals

Full Text: DOI

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Shirvani-Ghadikolai, M.; **Moussavi, A.**; **Kordi, A.**; **Ahmadi, A.**
On n-fold filters in BL-algebras. (English) Zbl 1188.03051
J. Algebra Number Theory, Adv. Appl. 2, No. 1, 27-42 (2009).

Summary: The notions of n-fold fantastic basic logic and the related algebras, n-fold fantastic BL-algebras, are introduced. We also define n-fold fantastic filters, prove some relations between these filters and construct quotient algebras via these filters.

MSC:

03G25 Other algebras related to logic
03B52 Fuzzy logic; logic of vagueness
06D35 MV-algebras
06F35 BCK-algebras, BCI-algebras

Cited in **1** Document

Keywords:

n-fold fantastic basic logic; n-fold fantastic BL-algebra; n-fold fantastic filter; quotient algebra

Nasr-Isfahani, Alireza R.; **Moussavi, Ahmad**
Skew Laurent polynomial extensions of Baer and p.p.-rings. (English) Zbl 1188.16023
Bull. Korean Math. Soc. 46, No. 6, 1041-1050 (2009).

Let R be a ring with 1, α an endomorphism of R, $R[x;\alpha]$ the skew polynomial ring, and $R[x,x^{-1};\alpha]$ the skew Laurent polynomial ring. Then R is called α-skew Armendariz if for $f(x)=\sum_{i=0}^m a_ix^i, g(x)=\sum_{j=0}^n a_jx^j \in R[x;\alpha]$, $f(x)g(x)=0$ implies $a_i\alpha^i(b_j)=0$ for each i,j. A ring R is called α-rigid if $a\alpha(a)=0$ for $a\in R$ implies $a=0$.

The authors show some properties of an α-skew Armendariz ring.

Theorem 1. The following are equivalent: (1) R is α-rigid; (2) α is injective, R is reduced and α-skew Armendariz; (3) $R[x,x^{-1};\alpha]$ is reduced.

Moreover, let α be a monomorphism of R, and R an α-skew Armendariz ring. Then it is shown that (1) R is a Baer ring if and only if so is $R[x,x^{-1};\alpha]$, and (2) R is a p.p.-ring if and only if so is $R[x,x^{-1};\alpha]$.

Reviewer: George Szeto (Peoria)

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings
16W20 Automorphisms and endomorphisms
16W60 Valuations, completions, formal power series and related constructions (associative rings and algebras)
16P60 Chain conditions on annihilators and summands: Goldie-type conditions

Cited in **3** Documents

Keywords:

skew polynomial rings; skew Laurent polynomial rings; Baer rings; p.p.-rings; rigid rings; skew-Armendariz rings

Full Text: DOI

Nasr-Isfahani, A. R.; **Moussavi, A.**
On weakly rigid rings. (English) Zbl 1184.16026
Glasg. Math. J. 51, No. 3, 425-440 (2009).

Let R be a ring with 1 and α a monomorphism of R. Then R is called α-weakly rigid if, for each $a,b\in R$,

$aRb = 0$ if and only if $a\alpha(Rb) = 0$. Let δ be a derivation of R. Then R is called δ-weakly rigid if, for each $a, b \in R$, $aRb = 0$ implies $a\delta(b) = 0$; and for an α-derivation δ, R is called (α, δ)-weakly rigid if it is both α-weakly and δ-weakly rigid. These rings are characterized in terms of matrix rings.

Theorem 1. The following are equivalent: (1) R is α-weakly rigid (resp. δ-weakly rigid). (2) The matrix ring $M_n(R)$ is $\overline{\alpha}$-weakly rigid (resp. $\overline{\delta}$-weakly rigid) for every positive integer n where $\overline{\alpha}$ and $\overline{\delta}$ are induced by α and δ. (3) $M_n(R)$ is $\overline{\alpha}$-weakly rigid (resp. $\overline{\delta}$-weakly rigid) for some n. Statements (2) and (3) also hold for upper triangular matrix ring $T_n(R)$.

Theorem 2. If R is an Ore ring and (α, δ)-weakly rigid, then the classical quotient ring of R is $(\overline{\alpha}, \overline{\delta})$-weakly rigid where $\overline{\alpha}$ and $\overline{\delta}$ are induced by α and δ such that $\overline{\alpha}(rc^{-1}) = \alpha(r)(\alpha(c))^{-1}$ and $\overline{\delta}(rc^{-1}) = \delta(r) - rc^{-1}\delta(c)(\alpha(c))^{-1}$.

Moreover, for an (α, δ)-weakly rigid ring R, some properties of the skew polynomial ring $R[x; \alpha, \delta]$, the skew Laurent series ring $R[x, x^{-1}; \alpha]$, and the skew power series ring $R[[x; \alpha]]$ are given. It is shown that R is quasi-Baer if and only if so is any one of these skew extensions, and R is left principally quasi-Baer if and only if so is any one of $R[x]$, $R[x; \alpha, \delta]$ and $R[x, x^{-1}; \alpha]$, where a quasi-Baer ring (left principally quasi-Baer) is a ring such that the annihilator of each right and left (left principal) ideal is generated by an idempotent.

Reviewer: George Szeto (Peoria)

MSC:

16S36	Ordinary and skew polynomial rings and semigroup rings	Cited in **14** Documents
16W20	Automorphisms and endomorphisms	
16P60	Chain conditions on annihilators and summands: Goldie-type conditions	
16W60	Valuations, completions, formal power series and related constructions (associative rings and algebras)	
16S50	Endomorphism rings; matrix rings	
16W25	Derivations, actions of Lie algebras	
16S85	Associative rings of fractions and localizations	

Keywords:

weakly rigid rings; automorphisms; derivations; matrix rings; quasi-Baer rings; Ore rings; classical quotient rings; skew polynomial rings; skew Laurent series rings; skew power series rings

Full Text: DOI

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Kordi, A.; **Moussavi, A.**

Quasi a-ideals of quasi BCI-algebras. (English) Zbl 1208.06008

Far East J. Math. Sci. (FJMS) 33, No. 1, 19-31 (2009).

A fuzzy set x_α in a set X is called a fuzzy point if it takes the value 0 for all $y \in X$ such that $x \neq y$ and $\alpha \in (0,1]$ at $x \in X$, that is,

$$x_\alpha(y) = \begin{cases} 0 & (y \neq x) \\ \alpha & (y = x). \end{cases}$$

The authors introduce an operation $\odot$ in the set $\mathrm{FP}(X)$ of all fuzzy points in X as follows:

$$x_\alpha \odot y_\beta = (x * y)_{\min\{\alpha,\beta\}}.$$

They prove some basic results about quasi a-ideals of quasi BCI-algebras, where the subset $\mathrm{FP}(\mu)$ of all fuzzy points in a quasi BCI-algebra X is called a quasi a-ideal of $\mathrm{FP}(\mu)$ if for all $\delta \in \mathrm{IM}(\mu)$ and $x_\alpha, y_\beta, z_\gamma \in \mathrm{FP}(X)$, we have:

(i) $0_\delta \in \mathrm{FP}(\mu)$,

(ii) $(x_\alpha \odot z_\gamma) \odot (0_\delta \odot y_\beta)$, $z_\gamma \in \mathrm{FP}(\mu)$ implies $(y * x)_{\min\{\alpha,\beta,\gamma,\delta\}} \in \mathrm{FP}(\mu)$.

If we denote a fuzzy point x_α by (x, α) $(\in X \times (0,1])$ and consider the operation $\odot$ as

$$(x, \alpha) \odot (y, \beta) = (x * y, \min\{\alpha, \beta\}),$$

that is, consider a structure $(X \times (0,1], \odot)$, then all properties in this paper may have shorter proofs.

Reviewer: Michiro Kondo (Inzai)

MSC:

06F35 BCK-algebras, BCI-algebras

Cited in **1** Document

Keywords:

fuzzy a-ideal; quasi a-ideal; quasi BCI-algebra

Full Text: Link

Hashemi, Ebrahim; **Moussavi, Ahmad**; **Nasr-Isfahani, Alireza**

Skew power series extensions of principally quasi-Baer rings. (English) Zbl 1188.16021

Stud. Sci. Math. Hung. 45, No. 4, 469-481 (2008).

An associative ring R with unity is called right principally quasi-Baer if the right annihilator of every principal right ideal of R is generated by an idempotent [*G. F. Birkenmeier, J. Y. Kim* and *J. K. Park*, Commun. Algebra 29, No. 2, 639-660 (2001; Zbl 0991.16005)]. In this paper the authors give necessary and sufficient conditions for R under which the skew power series ring $R[\![x,\alpha]\!]$ and the Laurent power series ring $R[\![x,x^{-1},\alpha]\!]$ are right principally quasi-Baer.

Let α be an endomorphism of R. If the conditions $ab=0$ and $a\alpha(b)=0$ are equivalent for all $a,b\in R$, then we say that R is α-compatible. An idempotent $e\in R$ is said to be left semi-central if $ere=re$ for all $r\in R$.

Suppose that all semi-central idempotents of R are central and let R be an α-compatible ring. Then the main result asserts that the following statements are equivalent: (1) The ring $R[\![x,x^{-1},\alpha]\!]$ is right principally quasi-Baer; (2) The ring $R[\![x,\alpha]\!]$ is right principally quasi-Baer; (3) The ring R is right principally quasi-Baer and every countable family of idempotents in R has a generalized join in the set of all idempotents of R. – An example showing that the α-compatible condition on R is not superfluous, is given.

Reviewer: S. V. Mihovski (Plovdiv)

MSC:

16S36	Ordinary and skew polynomial rings and semigroup rings	Cited in **1** Document
16W60	Valuations, completions, formal power series and related constructions (associative rings and algebras)	
16P60	Chain conditions on annihilators and summands: Goldie-type conditions	

Keywords:

right principally quasi-Baer rings; right annihilators; α-compatible rings; skew power series rings; skew Laurent power series rings; semicentral idempotents

Full Text: DOI

Ghahramani, H.; **Moussavi, A.**

Differential polynomial rings of triangular matrix rings. (English) Zbl 1192.16026

Bull. Iran. Math. Soc. 34, No. 2, 71-96 (2008).

Let R be a ring with 1, δ a derivation of R, $I_x\colon R\to R$ the inner derivation of R for an $x\in R$, and $R[\theta,\delta]$ the differential polynomial ring with the usual addition of polynomials and $\theta a=a\theta+\delta(a)$ for any $a\in R$.

Let R and S be rings with derivations δ_R and δ_S, respectively, and M an (R-S)-bimodule. Then $\tau\colon M\to M$ is called a generalized derivation with respect to (δ_R,δ_S) on M, if $\tau(rm)=\delta_R(r)m+r\tau(m)$, $\tau(ms)=\tau(m)s+m\delta_S(s)$ for $r\in R$, $s\in S$, and $m\in M$. Let $T=\left(\begin{smallmatrix}R&M\\0&S\end{smallmatrix}\right)$ be the generalized matrix ring. Then $d\colon T\to T$ is the derivation of T induced by $\tau\colon M\to M$ where $d\left(\begin{smallmatrix}r&m\\0&s\end{smallmatrix}\right)=\begin{pmatrix}\delta_R(r)&\tau(m)\\0&\delta_S(s)\end{pmatrix}$ for $r\in R$, $s\in S$, and $m\in M$.

The authors give an equivalent condition for a mapping $\Psi\colon\left(\begin{smallmatrix}R&M\\0&S\end{smallmatrix}\right)\to\left(\begin{smallmatrix}R'&N\\0&S'\end{smallmatrix}\right)$ such that $\Psi\left(\begin{smallmatrix}r&m\\0&s\end{smallmatrix}\right)=\begin{pmatrix}\varphi_1(r)&T(m)\\0&\varphi_2(s)\end{pmatrix}$ where $\varphi_1\colon R\to R'$ and $\varphi_2\colon S\to S'$ are homomorphisms and $T\colon M\to N$ is a generalized module homomorphism related to (φ_1,φ_2).

Next it is shown that a derivation $d\colon T\to T$, $d=\overline{d}+I_A$ where I_A is an inner derivation with $A\in T$ and $\overline{d}\left(\begin{smallmatrix}r&m\\0&s\end{smallmatrix}\right)=\begin{pmatrix}\delta_R(r)&\tau(m)\\0&\delta_S(s)\end{pmatrix}$ where τ is a generalized derivation of M. Moreover, a triangular representation of the differential polynomial ring $T[\theta;d]$ is obtained. Theorem. By keeping the above notations, $T[\theta;d]\cong\begin{pmatrix}R[x;\delta_R]&M[x,y;\tau]\\0&S[y;\delta_S]\end{pmatrix}$ for some $(R[x;\delta_R],S[y;\delta_S])$-bimodule $M[x,y;\tau]$.

Reviewer: George Szeto (Peoria)

MSC:

16S36	Ordinary and skew polynomial rings and semigroup rings	Cited in **3** Documents
16S50	Endomorphism rings; matrix rings	
16W25	Derivations, actions of Lie algebras	
16W20	Automorphisms and endomorphisms	

Keywords:

differential polynomial rings; homomorphisms; generalized upper triangular matrix rings; generalized derivations; inner derivations

Kordi, A.; **Moussavi, A.**; **Ahmadi, A.**

Fuzzy H-ideals of BCI-algebras with interval valued membership functions. (English) Zbl 1173.06009

Int. Math. Forum 3, No. 25-28, 1327-1338 (2008).

Some basic properties of fuzzy H-ideals of BCI-algebras are obtained.

Reviewer: Zhan Jianming (Enshi)

MSC:

06F35 BCK-algebras, BCI-algebras

Keywords:

BCI-algebra; H-ideal; i-v fuzzy H-ideal

Full Text: Link

Nasr-Isfahani, A. R.; **Moussavi, A.**

Baer and quasi-Baer differential polynomial rings. (English) Zbl 1154.16019

Commun. Algebra 36, No. 9, 3533-3542 (2008).

Let R be a ring with 1, δ a derivation of R, and $R[x;\delta]$ the differential polynomial ring which is the polynomial ring such that $xa = ax + \delta(a)$ for any $a \in R$. A ring R is called a Baer (resp. δ-Baer) ring if the right annihilator ideal $r_R(U)$ of every nonempty subset U (resp. δ-subset U, $\delta(U) \subset U$) of R is generated by an idempotent, and R is called a quasi-Baer ring if the right annihilator ideal of every ideal is generated by an idempotent.

Then the authors give some equivalent conditions for a quasi-Baer ring $R[x;\delta]$. Theorem 1. The following statements are equivalent: (1) R is δ-quasi Baer; (2) A $(= R[x;\delta])$ is quasi Baer; (3) A is $\overline{\delta}$-quasi Baer for every extended derivation $\overline{\delta}$ of δ in A (that is, $\overline{\delta}(r) = r$ for all $r \in R$ and $\overline{\delta}$ is a derivation of A).

Moreover, a ring R is said to satisfy the insertion of factors property (IFP) if $r_R(x)$ is an ideal for all $x \in R$. Then some equivalent conditions are shown for a Baer $R[x;\delta]$. Theorem 2. Let R be a ring with IFP, and δ a derivation of R. Then the following statements are equivalent: (1) R is δ-Baer; (2) A $(= R[x;\delta])$ is Baer; (3) A is $\overline{\delta}$-Baer for every extended derivation $\overline{\delta}$ of δ in A.

Thus results are derived for Abelian, Armendariz and reduced rings, respectively.

Reviewer: George Szeto (Peoria)

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings

Keywords:

δ-Baer rings; differential polynomial rings; δ-quasi-Baer rings; right annihilators; derivations; insertion of factors property

Full Text: DOI

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Nasr-Isfahani, A. R.; Moussavi, A.
On Ore extensions of quasi-Baer rings. (English) Zbl 1157.16008
J. Algebra Appl. 7, No. 2, 211-224 (2008).

A ring (associative with identity) R is called (right) principally quasi-Baer if the right annihilator of every (principal right) ideal of R is generated by an idempotent. The authors study if and when the quasi-Baer and principally quasi-Baer properties of a ring R is inherited by the Ore extension $R[x;\alpha,\delta]$ for any automorphism α and α-derivation of R.

Thus, if R is quasi-Baer, then so is $R[x;\alpha,\delta]$. Also, if R is right principally quasi-Baer such that either $\alpha(e)\in eR$ for each left semicentral idempotent $e\in R$ or $\alpha^m=\mathrm{id}_R$ for some positive integer m, then $R[x;\alpha,\delta]$ is right principally quasi-Baer.

Reviewer: Septimiu Crivei (Cluj-Napoca)

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings
16P60 Chain conditions on annihilators and summands: Goldie-type conditions

Cited in **9** Documents

Keywords:

principally quasi-Baer rings; Ore extensions; right annihilators; semicentral idempotents

Full Text: DOI

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Nasr-Isfahani, A. R.; Moussavi, A.

Ore extensions of skew Armendariz rings. (English) Zbl 1142.16016

Commun. Algebra 36, No. 2, 508-522 (2008).

Throughout R denotes an associative ring with identity, α is a ring endomorphism, δ an α-derivation of R, and $R[x;\alpha,\delta]$ the Ore extension whose elements are the polynomials over R, the addition is defined as usual and the multiplication subject to the relation $xa=\alpha(a)x+\delta(a)$ for any $a\in R$. The ring R is called α-rigid if there exists a rigid endomorphism α of R, in the sense that $a\alpha(a)=0$ implies $a=0$ for $a\in R$.

The authors introduce the following notion: the ring R is called skew-Armendariz if for polynomials $f(x)=a_0+a_1x+\cdots+a_nx^n$ and $g(x)=b_0+b_1x+\cdots+b_mx^m$ in $R[x;\alpha,\delta]$, $f(x)g(x)=0$ implies $a_0b_j=0$ for each $0\le j\le m$. These rings generalize α-skew Armendariz rings and α-rigid rings, and extend the classes of non reduced skew-Armendariz rings. The authors establish some properties of these rings and investigate connections of their properties with those of the Ore extension $R[x;\alpha,\delta]$. They extend and unify several known results on Armendariz rings.

Reviewer: Iuliu Crivei (Cluj-Napoca)

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings

16W20 Automorphisms and endomorphisms

Cited in **17** Documents

Keywords:

Baer rings; quasi-Baer rings; skew-Armendariz rings; skew polynomial rings

Full Text: DOI

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Kordi, A.; Moussavi, A.
On fuzzy ideals of BCI-algebras. (English) Zbl 1224.06040
PU.M.A., Pure Math. Appl. 18, No. 3-4, 301-310 (2007).

Summary: Fuzzy p-ideals, fuzzy H-ideals and fuzzy BCI-positive implicative ideals of BCI-algebras are studied, and related properties are investigated. We also give some characterizations of these ideals.

MSC:

06F35 BCK-algebras, BCI-algebras
03G25 Other algebras related to logic

Cited in **1** Document

Keywords:

BCI-algebras; fuzzy ideals

Nasr-Isfahani, A. R.; Moussavi, A.
On classical quotient rings of skew Armendariz rings. (English) Zbl 1140.16011
Int. J. Math. Math. Sci. 2007, Article ID 61549, 7 p. (2007).

Summary: Let R be a ring, α an automorphism, and δ an α-derivation of R. If the classical quotient ring Q of R exists, then R is weak α-skew Armendariz if and only if Q is weak $\widetilde{\alpha}$-skew Armendariz.

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings
16S90 Torsion theories; radicals on module categories (associative algebraic aspects)
16W25 Derivations, actions of Lie algebras

Cited in **2** Documents

Keywords:

ring endomorphisms; derivations; additive maps; skew polynomial rings; Armendariz rings; Ore extensions; classical right quotient rings

Full Text: DOI EuDML

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Moussavi, Ahmad; **Hashemi, Ebrahim**

On the semiprimitivity of skew polynomial rings. (English) Zbl 1142.16015

Mediterr. J. Math. 4, No. 3, 375-381 (2007).

Let R be a ring with identity, α an injective endomorphism of R, which is not assumed to be surjective, and δ an α-derivation of R. *S. A. Amitsur* [Can. J. Math. 8, 355-361 (1956; Zbl 0072.02404)] has shown that, if R has no nil ideal then the polynomial ring $R[x]$ is semiprimitive. This result was extended to skew polynomial rings of the form $R[x;\alpha,\delta]$ by many authors. *A. El Ahmar* [Arch. Math. 32, 13-15 (1979; Zbl 0398.16005)] has shown that if R is semiprime Noetherian and α is a monomorphism, then $R[x;\alpha]$ is semiprimitive. *A. Moussavi* [Proc. Edinb. Math. Soc., II. Ser. 36, No. 2, 169-178 (1993; Zbl 0804.16029)] has extended this result to the skew polynomial ring $R[x;\alpha,\delta]$; *A. D. Bell* [Commun. Algebra 13, 1743-1762 (1985; Zbl 0567.16002)] has proved that if R is semiprime left Goldie with α an automorphism and δ an α-derivation, then $R[x;\alpha,\delta]$ is semiprimitive left Goldie. He has also commented that it is not known whether this generalizes to the case where α is not assumed to be surjective. In this paper the authors give an affirmative answer to Bell's question.

Reviewer: Y. Kurata (Hadano)

MSC:

16S36	Ordinary and skew polynomial rings and semigroup rings	Cited in **3** Documents
16D60	Simple and semisimple modules, primitive rings and ideals in associative algebras	
16W25	Derivations, actions of Lie algebras	
16N60	Prime and semiprime associative rings	
16P60	Chain conditions on annihilators and summands: Goldie-type conditions	
16W60	Valuations, completions, formal power series and related constructions (associative rings and algebras)	

Keywords:

skew polynomial rings; skew Laurent polynomial rings; semiprimitivity; prime ideals; injective endomor-

phisms; semiprime left Goldie rings

Full Text: DOI

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Semiprime skew polynomial rings. (English) Zbl 1102.16018
Sci. Math. Jpn. 64, No. 1, 91-95 (2006).

Summary: A ring R with a monomorphism α and an α-derivation δ with $\alpha\delta = \delta\alpha$ is called '(α, δ)-quasi Baer' (resp. 'quasi Baer') if the right annihilator of every (α, δ)-ideal (resp. ideal) of R is generated by an idempotent of R. In this paper we show that a semiprime ring $R[x; \alpha, \delta]$ is α-quasi Baer if and only if $S = R[x; \alpha, \delta]$ is $(\alpha, \overline{\delta})$-quasi Baer for every extended α-derivation $\overline{\delta}$ on S of δ if and only if R is (α, δ)-quasi Baer.

MSC:

16S36 Ordinary and skew polynomial rings and semigroup rings
16N60 Prime and semiprime associative rings
16W25 Derivations, actions of Lie algebras
16P60 Chain conditions on annihilators and summands: Goldie-type conditions

Cited in **1** Document

Keywords:

quasi Baer rings; right annihilators; idempotents; semiprime rings; derivations