

Characterization of prime and maximal ideals of skew polynomial Rings over a Dedekind Domain

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EXTENDED ABSTRACT :

This research studied prime and maximal ideals of skew polynomial rings over a commutative Dedekind domain. Let R be a Dedekind domain. A skew polynomial rings over a commutative Dedekind domain, is the ring consisting of all polynomials over the ring R with an indeterminate x whose product operation satisfies some equation.

Skew polynomial rings are widely used as underlying rings on the area of algebraic system theory. The development of skew polynomial rings certainly will be of benefit for the development of the algebraic system theory and vice versa. The investigation of the algebraic structure of the skew polynomial rings for various kind of the underlying rings R has been of interest a number of researchers such as Ore, Jacobson, Amitsur, Lam, Leroy, Matczuk Irving, Goodearl, dan Letzter. For example for the case R being a division ring, Ore had investigated the structure of the skew polynomial rings through studying the properties of unique factorization, greatest common factorization and multiplication notions.

In the previous research we already identified prime and maximal ideals of a skew polynomial ring over a commutative Dedekind domain, and for the case of the zero sigma-derivative. The identification was done by studying their contraction on the center of the ring and on the underlying ring R . In this research we extend the results to general sigma-derivative. The investigation was done into two cases, for the case where the sigma-derivative, δ , is inner, and then for the case δ is neither zero nor inner.

LIST OF RESEARCH OUTPUT (articles)

- Prime factor rings of skew polynomial rings over a Commutative Dedekind domain
- Minimal prime ideals of an Ore extension over a commutative Dedekind domain
- Polynomials over a Dedekind domain
- Pusat Gelanggang polinom miring atas daerah Dedekind