

## ON ORDERED FIELDS

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Orderings of a field which play an important role in studying Witt Rings were introduced and studied extensively by E. Artin in 1920s. These orderings of a field were developed to orderings and  $q$ -orderings. Moreover E. Becker generalized these concepts to higher level cases and extended many results holding in ordinary cases to those in higher level cases.

In chapter 1, 2, we investigate some properties on ideals of Witt Rings over ordered fields by using the Sylvester signature map. In chapter 3, 4, we obtain some results between higher level preorderings and higher level semiorderings by using the concepts of  $T$ -module. Furthermore we associate higher level preorderings and higher level semiorderings with Krull valuations by using the notion of compatibility.

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