

HIGHER LEVEL SIGNATURE OVER SPECIAL DOMAINS

JONG IN LIM

This dissertation deals with higher level signature over special domains. The concept of higher level signature was introduced by E. Becker in 1978, and many results generalizing the ordinary level case have been obtained since then. In this thesis the followings are proved: (1) If A is a valuation ring with usual conditions each higher level signature over A can be extended faithfully to that over the quotient field K of A . (2) As a corollary, if a unit element u of A belongs to $\sum K^{2^n}$ then it is already in $\sum(A)$. (3) If σ is a higher level signature over a local domain, there exists a prime ideal \mathfrak{p} of A such that σ can be extended faithfully to $A_{\mathfrak{p}}$. (4) The results in (1), (2) are also established for A local and Prüfer. Finally two examples are given which give us convictions that the two conditions are necessary in (4).

Korea University
Seoul 132, Korea

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Supervisor: Professor In Ho Cho.