CHAIN CONDITIONS OVER POWER SERIES AND POLYNOMIAL RINGS

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Abstract. Following the Hilbert Basis theorem and its applications, there has been a vast variety of studies involving the chain conditions over the polynomial or the power series rings. One type of chain condition is the Archimedean condition, which says $\bigcap_n Rt^n = 0$ for any nonunit element t in the ring R. In this talk, we start with the ascending chain condition on principal ideals (ACCP) over a larger class "skew generalized power series rings". Then we explain the relation between ACCP rings and Archmidean rings and answer partially to the question "*when these properties can be lifted from the ring R to the ring $R[[x;\alpha]]$? *" In particular we show that if R is an Archimedean reduced ring and satisfy ACC on annihilators, then $R[[x]]$ is also an Archimedean reduced ring.