Analytic closure

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Let V be a valuation domain with the value group the reals and K be its quotient field. Let W be a one-dimensional valuation extension of V to the algebraic closure of K. We show that every power series over V, which is not an associate of a constant, is an infinite product of countably many primitive power series over W with the initial degree 1. Let $\widehat{W}$ be the completion of W. Also we show that every power series over $\widehat{W}$, which is not an associate of a constant, has a zero in $\widehat{W}$ and is an infinite product of countably many primitive power series of the form x–a, $a \in \widehat{W}$.

This is a joint work with M.H.Park

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