Morphisms between ultrametric Banach algebras and maximal ideals of finite codimension

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Abstract

Let K be an ultrametric complete field and let E be a complete ultrametric space. Let A be the Banach K-algebra of bounded continuous functions from E to K and let B be the Banach K-algebra of bounded uniformly continuous functions from E to K. We first recall the main properties of ultrafilters, maximal ideals and multiplicative semi-norms previously studied. Next, we examine the continuous morphisms between such algebras. Finally, we show that every maximal ideals of finite codimension is of codimension 1 and under wide hypotheses we show that non-convergents ultrafilters define maximal ideals of infinite codimension.