Jonathan Mason (pmxjwdm@nottingham.ac.uk) School of Mathematical Sciences, University of Nottingham, Nottingham NG7 2RD, United Kingdom, ***Generalising uniform algebras over complete valued fields.***

ABSTRACT. Uniform algebras have been extensively investigated because of their importance in the theory of uniform approximation and as examples of complex Banach algebras. As enquiry broadens one may ask whether analogous algebras exist when a complete valued field other than the complex numbers is used as the underlying field over which the algebra is a vector space. The Stone-Weierstrass theorem shows that the real Banach algebra of all continuous real-valued functions on a compact Hausdorff space is without a proper subalgebra that satisfies the conditions of the theorem. However, Kulkarni and Limaye in a paper from 1981 introduced the now familiar theory of real function algebras and these do have proper subalgebras analogous to uniform algebras and can in part be described as real Banach algebras of continuous complex-valued functions. In this talk we see how their definition generalises to accommodate any complete valued field as the underlying field by involving Galois automorphisms. Classical uniform algebras and real function algebras now appear as instances of the new theory which is of sufficient generality as to also be applicable in the nonarchimedean setting.