

STATISTICAL FUNCTIONAL EQUATIONS AND P -HARMONIC FUNCTIONS

DAVID HARTENSTINE, WESTERN WASHINGTON UNIVERSITY

Motivated by the mean value property characterizing harmonic functions and recently established asymptotic statistical formulas characterizing p -harmonic functions, the Dirichlet problem in bounded domains for functional equations involving a convex combination of mean and median operators will be considered. Using largely elementary methods, it will be shown that continuous solutions are unique and the existence of such a solution is guaranteed when a sub/supersolution pair can be found. Solutions of these problems approximate p -harmonic functions. Connections with related results of Manfredi, Parviainen and Rossi will be discussed. This is joint work with Matthew Rudd.