983-43-74 **Dorin Ervin E Dutkay*** (ddutkay@math.uiowa.edu), 14 MacLean Hall, Department of Mathematics, The University of Iowa, Iowa City, IA 52242. *The local trace function of shift invariant subspaces.*

We define the local trace function for subspaces which are invariant under integer translation. Our trace function contains the dimension function and the spectral function defined by Bownik and Rzeszotnik and completely characterizes the given translation invariant subspace. It has properties such as positivity, additivity, monotony and some form of continuity. It behaves nicely under dilations and modulations. We use the local trace function to deduce, using short and simple arguments, some fundamental facts about wavelets such as the characterizing equations, the equality between the dimension function and the multiplicity function and some new relations between scaling functions and wavelets. (Received July 25, 2002)