

# Multiresolution Analysis and Wavelets on Locally Compact Abelian Groups

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## Abstract

In this paper, the concept of a multiresolution analysis approximation of functions is generalized to locally compact Abelian groups. An existence theorem based on generalized B-splines is proved and several examples are given. Furthermore, the associated wavelet basis is constructed.

**Key Words:** Locally compact Abelian groups, multiresolution analysis, wavelets, generalized B-splines, self-similar tilings.

**AMS Subject Classifications:** 22B05, 41A15.