

Harmonic analysis on Abelian groups: preliminaries and background

Introductory talk by Miklós Laczkovich

In the talk we discuss the object of harmonic (spectral) analysis and synthesis through the examples of classical Fourier analysis on $[0, 2\pi]$, the theory of linear recursions, and Laurent Schwartz' theorem on spectral synthesis on \mathbb{R} . We review the notions of characters, exponential functions, polynomials, exponential polynomials and their characterizations and generalizations on discrete Abelian groups.

Spectral analysis and synthesis on discrete Abelian groups: results and applications

Main talk by Miklós Laczkovich

In the talk we discuss the main results of the topic: spectral analysis on discrete Abelian groups of cardinality less than continuum, spectral synthesis on discrete Abelian groups of finite rank, and local spectral synthesis on countable discrete Abelian groups. We also give some applications to linear functional equations and to the Pompeiu problem.