

REFINED FOURIER ANALYSIS: PROCEDURES, ERROR ESTIMATES AND APPLICATIONS

G. GÓMEZ^a, J.M. MONDELO^b and C. SIMÓ^a

^a*Departament de Matemàtica Aplicada i Anàlisi, Universitat de Barcelona
Gran Via 585, 08007 Barcelona, Spain*

^b*Departament de Matemàtica Aplicada I, Universitat Politècnica de Catalunya
Diagonal 647, 08028 Barcelona, Spain*

Abstract

The purpose of this paper is to develop and analyze Fourier analysis procedures that allow an accurate determination of the frequencies and the amplitudes when the analyzed function is quasi-periodic or close to it. The procedures and theoretical results are illustrated with examples and applications.

Key words: Fourier analysis, Fast Fourier Transform, quasi-periodic functions.