École Polytechnique de Tunisie

Conference by Hajer Bahouri (UPEC-CNRS)

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Title

Asymptotic analysis of Fourier transform on the Heisenberg group when the vertical frequency tends to 0

Abstract

In this joint work with Jean-Yves Chemin and Raphael Danchin, we propose a new approach of the Fourier transform on the Heisenberg group. The basic idea is to take advantage of Hermite functions so as to look at Fourier transform of integrable functions as mappings on the some set endowed with a suitable distance. We prove that the Fourier transform of integrable functions is uniformly continuous for the considered distance which enables us to extend functions to the completion of our set and to get an explicit asymptotic description of the Fourier transform when the *vertical* frequency tends to 0. We expect our approach to be relevant for adapting to the Heisenberg framework a number of classical results for the $\R^n$ case that are based on Fourier analysis.