Cotlar-type identities for groups acting on trees like structures

Runlian Xia

Abstract

The Hilbert transform H is a basic example of a Fourier multiplier. Riesz proved that H is a bounded operator on $L_p(\mathbb{T})$ for all $1 < p < \infty$. We study Hilbert transform type Fourier multipliers on group algebras and their boundedness on corresponding non-commutative L_p spaces. The pioneering work in this direction is due to Mei and Ricard who proved L_p-boundedness of Hilbert transforms on free group von Neumann algebras using a Cotlar identity. In this talk, we introduce a generalised Cotlar identity and a new geometric form of Hilbert transform for groups acting on $\mathbb{R}$-trees. This class of groups includes free groups, amalgamated free products, HNN extensions, totally ordered groups and many others.

Joint work with Adrián González and Javier Parcet.