

Discretization and transference for bilinear operators

Óscar Blasco

Universitat de València.

Since the proof of Calderón conjecture on the boundedness of the bilinear Hilbert transform from $L^2(\mathbb{R}) \times L^2(\mathbb{R}) \rightarrow L^1(\mathbb{R})$, due to M. Lacey y C. Thiele in the late nineties, there have been several attempts to get the analogues on other groups such as \mathbb{T} or \mathbb{Z} . Their proof in \mathbb{R} can not be adapted to \mathbb{T} or \mathbb{Z} because of the lack of the dilation structure, nevertheless the analogue results on \mathbb{T} or \mathbb{Z} can be achieved using some transference methods.

In the linear case there exist procedures to transfer "convolution type" operators either using either DeLeew type or Coifman-Weiss type transference methods. Similar methods of bilinear transference and discretization will be presented in the bilinear situation. They will allow us to obtain the boundedness of the periodic and discrete versions of bilinear multipliers (even for their maximal versions) and to get new applications of these results in Ergodic Theory.