

A tour of t -Haar multipliers

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Variable Haar multipliers are operators akin to pseudo-differential operators, where the Fourier basis has been replaced by the Haar basis. The t -Haar multipliers T_{tw} are a class of variable Haar multipliers where the symbol, a function of both the space and frequency variable (encoded on the dyadic intervals), depends on a weight w and a real parameter t . These operators appeared in the early 90's in work related to the resolvent of the dyadic paraproduct. At the time, necessary and sufficient conditions for boundedness on L_p spaces were found. Recently, one- and two-weight boundedness properties were studied. Necessary and sufficient conditions on the triple of weights (u,v,w) were identified for boundedness from $L_2(u)$ into $L_2(v)$ in the case $t=1$ and $p=2$. More recently, progress has been made in the study of matrix valued t -Haar multipliers.

In Special Session 43 on Harmonic Analysis and Partial Differential Equations at the Mathematical Congress of the Americas 2025.