# ENTANGLED MULTILINEAR FORMS ASSOCIATED WITH HYPERGRAPHS 

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Entangled multilinear singular integral forms have been studied by several authors over the last ten years. They recently found applications in ergodic theory [5, in arithmetic combinatorics 4, to stochastic integration [9, and within the harmonic analysis itself [6]. Therefore, it would be useful to have a reasonably general theory establishing (or characterizing) $L^{p}$ bounds for these objects. As a step in this program we take a result of Kovač [7], where the forms are dyadic and indexed by bipartite graphs, and generalize it to $r$ partite $r$-uniform hypergraphs. Furthermore, we also combine it with the techniques of Durcik [1, [2] in order to cover general translation-invariant Calderón-Zygmund kernels. Some higher-dimensional instances were already discussed by Kovač [8] and Durcik [3], but our hypergraph generalization prefers a combinatorial description of the structure over a geometric one. Consequently, we can study less symmetric entangled forms and show their estimates in an open range of $L^{p}$ spaces.

This is a joint work with Vjekoslav Kovač (University of Zagreb).

## References

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