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*Averages of the simplex Hilbert transform*

The simplex Hilbert transform is a multilinear operator generalizing the classical Hilbert transform. It is a difficult open problem in harmonic analysis to decide whether this operator satisfies any  $L^p$  bounds. In this talk I will explain some joint work in progress with Polona Durcik, where we study a certain averaged version of the simplex Hilbert transform which is related to the simplex Hilbert transform in the same way as the bilinear Hilbert transform is related to the Calderón commutator. In particular, our bounds imply some of the known bounds for higher-order commutators.