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Non-conventional averaging in C^ -algebras*

Several important averaging properties have shown up in the theory of operator algebras, most notably the Dixmier averaging property and its variants, which deals with convex averages of elements in some unitary orbit. In joint work with Matthew Kennedy, expanding upon the work of Magajna in the theory of C^* -convex averages, we develop a strong new averaging property and separation theorem, and use it to characterize when the intermediate subalgebra structure of a crossed product is entirely canonical. Progress-permitting, we will also give a sneak peek at some preliminary results using these same averaging techniques applied to the ideal structure of crossed products.