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Limit distributions for sums of c-free random variables

The theory of the conditionally free (abbreviated as c-free) random variables was introduced by Bozejko, Leinert and Speicher in the early 1990s, as a generalization of Voiculescu's freeness to the algebras with two states. The concept of c-freeness leads to a binary operation, called additive c-free convolution, on pairs of compactly supported probability measures on the real line. In this talk I will report the recent progress in the analytic study of this convolution. The main result is that the weak convergence of c-free and, respectively, of classical convolution are equivalent for measures in an infinitesimal array, where the measures may have unbounded support. This result allows us to further determine the class of limit distributions for c-free convolution.