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Asymptotic entanglement concentration of multi-qubit W states

While the general problem of multipartite entanglement concentration remains open, one can still show that for a certain class of multipartite states, the multi-qubit W class, it is possible to asymptotically concentrate the entanglement of n copies of the state into a single canonical “completely entangled” state (i.e., with maximally mixed one-particle density matrices), between local Hilbert spaces of high dimension. In this talk we show how this remarkable property of W states follows from the application of a multi-local Schur transform, permutation symmetry, and the algebra of SLOCC covariants for W states, and how it in turn admits a concentration protocol akin to the distortion-free protocol of Hayashi and Matsumoto. If time permits, we will also discuss how the asymptotic tail exponents can be computed in principle, and discuss some partial results in this respect.