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The Shannon-McMillan theorem for AF C^*-dynamical systems by example of $SU(n)$ fixed point subalgebras

Abstract

In ergodic theory, Shannon-McMillan type theorems describe the size of the typical sets by entropy. The quantum mean entropy of a translation invariant state for an AF C^*-dynamical system can be approximated by classical mean entropy of its restriction to some abelian subalgebras. In this study we analyze in detail how the ingredients of the theorem behave for the fixed point subalgebra of $SU(n)$ action on the UHF algebra.