

TOPOLOGICAL ORBIT DIMENSION OF MF C*-ALGEBRAS AND NFD ALGEBRAS

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Abstract. This paper is a continuation of our work on D. Voiculescu’s topological free entropy dimension $\delta_{\text{top}}(x_1, \dots, x_n)$ for a family $\{x_1, \dots, x_n\}$ of elements in a unital C*-algebra. We first give a relation between the topological orbit dimension $\mathfrak{K}_{\text{top}}^{(2)}$ and the modified free orbit dimension $\mathfrak{K}_2^{(2)}$ by using MF-traces. We also introduce a new invariant $\mathfrak{K}_{\text{top}}^{(3)}$ which is a modification of the topological orbit dimension $\mathfrak{K}_{\text{top}}^{(2)}$ when $\mathfrak{K}_{\text{top}}^{(2)}$ is defined. As an application of $\mathfrak{K}_{\text{top}}^{(3)}$, we prove that $\mathfrak{K}_{\text{top}}^{(3)}(\mathcal{A}) = 0$ if the separable C*-algebra \mathcal{A} has property c*- Γ and has no non-zero finite-dimensional representations. We also introduce the property MF-c*- Γ . We then show that $\mathfrak{K}_{\text{top}}^{(3)}(\mathcal{A}) = 0$ if the finitely generated C*-algebra \mathcal{A} has property MF-c*- Γ and has no non-zero finite-dimensional representations.

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