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The Hochschild and cyclic cohomology of simplicially trivial topological algebras

We give explicit formulae for the continuous Hochschild and cyclic homology and cohomology of simplicially trivial $\hat{\otimes}$ -algebras. We show that, for a continuous morphism $\varphi: \mathcal{X}^* \rightarrow \mathcal{Y}^*$ of complexes of complete nuclear DF -spaces, the isomorphism of cohomology groups $H^n(\varphi): H^n(\mathcal{X}^*) \rightarrow H^n(\mathcal{Y}^*)$ is automatically topological. The continuous cyclic-type homology and cohomology are described up to topological isomorphism for the following classes of biprojective $\hat{\otimes}$ -algebras: the algebra of smooth functions $\mathcal{E}(G)$ on a compact Lie group G , the algebra of distributions $\mathcal{E}^*(G)$ on a compact Lie group G ; the tensor algebra $E \hat{\otimes} F$ generated by the duality $(E, F, \langle \cdot, \cdot \rangle)$ for nuclear Fréchet spaces E and F or for nuclear DF -spaces E and F ; nuclear biprojective Köthe algebras $\lambda(P)$ which are Fréchet spaces or DF -spaces.