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Connes-amenability of $WAP(\mathfrak{B}^*)^*$. (English) [Zbl 1419.46031](#)
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Summary: For a Banach algebra \mathfrak{B} , the set of weakly almost periodic functions on \mathfrak{B} is denoted by $WAP(\mathfrak{B}^*)$. It is known that amenability of \mathfrak{B} yields Connes-amenability of $WAP(\mathfrak{B}^*)^*$. The converse is not generally true though. We prove that under certain assumptions, \mathfrak{B} is amenable if and only if $WAP(\mathfrak{B}^*)^*$ is Connes-amenable. As a result, we show that for a reflexive Banach space E with the approximation property, $K(E)$ is amenable if and only if $WAP(K(E)^*)^*$ is Connes-amenable.

MSC:

- 46H20 Structure, classification of topological algebras
- 46H25 Normed modules and Banach modules, topological modules (if not placed in 13-XX or 16-XX)
- 47L10 Algebras of operators on Banach spaces and other topological linear spaces

Keywords:

amenability; Connes-amenability; multiplier Banach algebra; weakly almost periodic functions

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