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*Approximate amenability of  $K(X)$*

The first example of an approximately amenable non-amenable Banach algebra, given when the notion was introduced by R. J. Loy and I, is *synthetic*. Later, a host of *naturally arising* examples were found amongst sequence algebras, Fourier algebras, and semigroup algebras. The question of existence of a Banach space  $X$  for which the Banach algebra  $K(X)$  of all the compact operators on  $X$  is approximately amenable, non-amenable, was open since the notion was founded in 2000. We answer the question in the affirmative. We also show that there exists an algebra of operators on a Hilbert space that is approximately amenable, non-amenable. This is joint work with Charles Read.