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A simple, separable, exact C^*-algebra non-isomorphic to its opposite algebra

It was an open question for a while if there existed a simple, separable, exact C^*-algebra which was not isomorphic to its opposite algebra. In a recent work with C. Phillips we gave an example of such a C^*-algebra A and showed that it has the following additional properties. It is stably finite, approximately divisible, has real rank zero and stable rank one, and has a unique tracial state. Moreover, the order on projections over D is determined by this unique trace, and the C^*-algebra tensorially absorbs the Jiang–Su algebra Z, and the 3^∞ UHF algebra. We could also explicitly compute the K-theory of D, namely $K_0(D) \cong \mathbb{Z}[\frac{1}{3}]$ with the standard order, and $K_1(D) = 0$. Some open questions about simple, separable C^*-algebras with some additional properties which are not isomorphic to their opposite algebras will also be discussed.