

Positivity is undecidable in product algebras

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1. Abstract

It's a natural question to ask when an element of $*$ -algebra is positive on all $*$ -representations. In the theory of nonlocal games, we'd like to be able to answer this question for $*$ -polynomials in a product of free $*$ -algebras, and similar algebras. Unfortunately it turns out that this problem is undecidable. I'll give an overview of this result, which is joint work with Arthur Mehta and Yuming Zhao, and look at other decision problems in operator algebras.