

Three shades of dynamical strict comparison

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Abstract

The notion of strict comparison of a C^* -algebra was inspired by the theory of II_1 factors and has played an instrumental role in the Elliott classification program. Recently, the study around a dynamical analog of strict comparison has been gaining interest, pioneered by Kerr and his coauthors. In this talk, I will focus on a part of my joint work with Bosa, Perera, and Zacharias, which takes a more systematic look at the formulation of dynamical strict comparison and, as a result, produces three different kinds of dynamical strict comparison for a topological dynamical system. The weakest of the three agrees with Kerr's dynamical strict comparison, while the other two are properties of dynamical analogs of the Cuntz semigroup (one of the semigroups turns out to be isomorphic to Xin Ma's generalized type semigroup). Contrary to previous speculations, we now know for many topological dynamical systems that Kerr's dynamical strict comparison holds without the presence of other regularity properties such as mean dimension zero and strict comparison of the crossed products. This somewhat unexpected mismatch may be remedied by replacing Kerr's dynamical strict comparison with the strongest of our three dynamical strict comparison properties. As an application, our work widens the scope of topological dynamical systems whose crossed products are classifiable.