An Introduction To C*-algebras and How They Arise From Groups

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Abstract

C*-algebras were initially studied because of their use in quantum mechanics. However, their properties, their connection with other fields of mathematics, and their applications in physics have been studied heavily by researchers for the last 80 years. The basic, infinite dimensional

-algebras, but I will focus on the ones that arise from groups. After explaining the construction, I will give many examples. In particular, I will explain what C*-algebras we get if we start with finite, abelian, or other classes of groups. If time permits, I will also briefly explain what properties of a group can be recovered from the C*-algebra.