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Ultrapowers of unitary groups of UHF algebras

It is well known that the Continuum Hypothesis implies all ultrapowers of a fixed Polish group G are isomorphic. (This is provided that all ultrafilters we consider are nonprincipal ultrafilters on the set of natural numbers.) I will show that the converse holds if G is the unitary group of a UHF C^* -algebra: If the Continuum Hypothesis fails, then there are nonisomorphic ultrapowers of G . The analogous statement for the relative commutant of G in the ultrapower is also true. Its variant for C^* -algebras answers a question of Kirchberg. I will also give some remarks on the extreme amenability of the unitary groups of AF and UHF C^* -algebras.