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Automorphisms of corona algebras

The Proper Forcing Axiom has long been known to have a strong effect on the rigidity of various uncountable structures, where in contrast the continuum hypothesis often implies nonrigidity. One such example is the case of the automorphisms of the corona $M(A)/A$ of a C^* -algebra A , where Shelah-Steprans and Farah respectively have rigidity results under PFA in the case of $A = c_0$ and $A = K(\ell^2)$. Both results “factor” in the same way, namely by first showing (using PFA) that an automorphism is necessarily definable, and then by showing (just in ZFC) that a definable automorphism has a certain structure. I will discuss a recent result (joint with A. Vignati) which proves the first half of the factorization for a large class of separable, nuclear C^* -algebras. With time I’ll discuss what is open in the second half of the factorization.