

What should a non-commutative resolution of singularities be?

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Resolutions of singularities are fundamental tools for working with singular spaces. One might try to give a purely algebraic definition of resolution of singularities in terms of ring theory. The world of commutative rings turns out to be too small for this purpose, so we are led to the possibility of "non-commutative desingularizations." I will describe some progress and results on what non-commutative desingularizations are, or at least might be.