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The wild automorphisms problem

An automorphism σ of a projective variety X is wild if it has no proper non-empty Zariski closed subsets that are invariant under σ. Reichstein, Rogalski, and Zhang proved that if X is a projective curve or surface that admits a wild automorphism then X is an abelian variety and they conjectured that this should hold in higher dimensions. We give a survey of recent work on this project and explain how the use of model theoretic techniques allows us to prove this conjecture in certain new cases. This is joint work with Rahim Moosa.