Bertini irreducibility for covers of tori

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Bertini's irreducibility theorem, in one of its several incarnations, states that given an irreducible quasi-projective variety of dimension at least two, most intersections with a hyperplane remain irreducible. One can deduce many similar results on preservation of irreducibility (e.g. when taking preimages, specialisations...). It is crucial, though, that the hyperplanes can be parametrised with a variety. It turns out that there is a similar pattern for tori, even if one consider the non-algebraic family of algebraic subgroups: if a quasi-projective variety covers a torus, then the preimages of most positive dimensional cosets are irreducible, unless (a pullback of) the variety itself is already reducible. This is joint work with C. Fuchs and U. Zannier.