HOW TO RESOLVE SINGULARITIES?

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Given a polynomial of $n > 2$ variables $x = (x_1, \cdots, x_n)$, say $f(x)$ with real or complex coefficients, I will talk about how to find birational transforms $x = \phi(y)$ such that $f(\phi(y))$ are *simplified*, i.e. monomials in local coordinates everywhere.

In the language of algebraic geometry, given an algebraic variety X in an ambient smooth manifold Z, the task is to find a proper birational map $\pi : Z' \longrightarrow Z$ such that $\pi^{-1}(X)$ has only normal crossings.

My talk will be about the method to construct π as a finite succession of elementary transformations which are called blowing-ups.

In this talk, I will present a totally constructive procedure that is most up to date after many works of Hironaka, H. (Ann. of Math,1964, and J.Hopkins U.,1977), Youssin, B. (Mem.AMS,1990), Aroca,JM,et al(Inst."J.Juan",1977), and Bierstone,E.,Milman,P.D.(Inv.Math.,1997), for instance.

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