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Smoothing singularities

A singular variety is *smoothable* if it belongs to a flat family whose nearby fibers are all smooth. For example, any plane curve is smoothable, because a general plane curve of any degree is smooth.

In this talk I will give some examples of smoothable and non-smoothable varieties in different contexts: projective, affine, and local. Then I will give a criterion that allows one to test smoothability based only on infinitesimal deformations. In particular, this will show that the smoothability of an isolated singularity depends only on its analytic isomorphism class.