Zariski's dimensionality type of singularities. Case of dimensionality type 2.

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Abstract

In the 1970s O. Zariski introduced a general equisingularity theory for algebroid and algebraic hypersurfaces over an algebraically closed field of characteristic zero. His theory builds up on understanding the dimensionality type of hypersurface singularities, notion defined recursively by considering the discriminants loci of successive "generic" corank 1 projections. The theory of singularities of dimensionality type 1, that is the ones appearing generically in codimension 1, was developed by Zariski in his foundational papers on equisingular families of plane curve singularities. We give a similar complete description for singularities of dimensionality type 2, that is for families of surface singularities in the affine space of dimension three. Moreover, we show that in this case the generic linear projections are generic in the sense of Zariski, this is still an open problem for the dimensionality type greater than 2. (joint work with Laurentiu Paunescu, the University of Sydney)

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