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Sommario/riassunto	In the second edition we do not only correct errors, update references and improve some of the proofs of the text of the first edition, but also add a new chapter on singularities in arbitrary characteristic. We give an overview of several aspects of singularities of algebraic varieties and formal power series defined over a field of arbitrary characteristic (algebraically closed or not). Almost all of the results presented here appeared after the publication of the first edition and some results are new. In particular, we treat, in arbitrary characteristic, the classical invariants of hypersurface singularities, and we review results on the equisingularity of plane curve singularities, on the classification of parametrizations of plane branches, and on hypersurface and complete intersection singularities with small moduli. Moreover, we discuss and prove determinacy and semicontinuity results of families of ideals and matrices of power series parametrized by an arbitrary Noether base scheme, which are used to prove open loci properties for several singularity invariants. The semicontinuity has surprising applications in the computation of local standard bases of zero dimensional ideals,

which are by magnitudes faster than previously known methods. The chapter contains two appendices. One is by Dmitry Kerner on large submodules within group orbits, which relates to determinacy criteria for singularities in very general contexts. It is focused on methods applicable to a broad class of fields of arbitrary characteristic, while before the theory was mainly restricted to zero characteristic. The second appendix is by Ilya Tyomkin and deals with the geometry of Severi varieties, mainly on toric varieties. It discusses the breakthrough solution to the problem on the irreducibility of Severi varieties of the plane in arbitrary characteristic, with a focus on the characteristic free approach based on tropical geometry. We try to be self-contained and give proofs whenever possible. However, due to the amount of material, this is not always possible, and we then give precise references to the original sources.