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Superisolated surface singularities. (English) Zbl 1101.14003

Lossen, Christoph (ed.) et al., Singularities and computer algebra. Selected papers of the conference, Kaiserslautern, Germany, October 18–20, 2004 on the occasion of Gert-Martin Greuel's 60th birthday. Cambridge: Cambridge University Press (ISBN 0-521-68309-2/pbk). London Mathematical Society Lecture Note Series 324, 13-39 (2006).

Summary: In this survey, we review part of the theory of superisolated surface singularities (SIS) and its applications including some new and recent developments. The class of SIS singularities is, in some sense, the simplest class of germs of normal surface singularities. Namely, their tangent cones are reduced curves and the geometry and topology of the SIS singularities can be deduced from them. Thus this class contains, in a canonical way, all the complex projective plane curve theory, which gives a series of nice examples and counterexamples. They were introduced by I. Luengo to show the non-smoothness of the μ-constant stratum and have been used to answer negatively some other interesting open questions. We review them and the new results on normal surface singularities whose link are rational homology spheres. We also discuss some positive results which have been proved for SIS singularities.

For the entire collection see [Zbl 1086.14001].

MSC:

14B05	Singularities in algebraic geometry
14H20	Singularities of curves, local rings
14J17	Singularities of surfaces or higher-dimensional varieties
32S50	Topological aspects of complex singularities: Lefschetz theorems, topological classification, invariants