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21 years of SINGULAR experiments in mathematics. (English) [Zbl 1101.14070](#)

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, 247-272 (2006).

Summary: This article gives some overview on SINGULAR, a computer algebra system for polynomial computations with special emphasis on the needs of commutative algebra, algebraic geometry and singularity theory, which has been developed under the guidance of *G.-M. Greuel*, *G. Pfister* and the second author [<http://www.singular.uni-kl.de>]. We draw the bow from SINGULAR's early years to its latest features. Moreover, we present some explicit calculations, focusing on applications in singularity theory.

For the entire collection see [[Zbl 1086.14001](#)].

MSC:

- 14Q99** Computational aspects in algebraic geometry
- 14B05** Singularities in algebraic geometry
- 14E15** Global theory and resolution of singularities (algebro-geometric aspects)
- 32S10** Invariants of analytic local rings

Software:

[SINGULAR](#)