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| Nota di contenuto | Gert-Martin Greuel's work, Duco van Straten -- Divisor class groups of affine complete intersections, Helmut Hamm -- Rational plane quartics and K3 surfaces, Viktor Kulikov -- Remarks on the Lê-Greuel formula for the Milnor number, José Seade -- Bi-Lipschitz regular complex space are regular, Lê Dng Tráng -- Enumeration of real algebraic curves, Eugenii Shustin -- A real analytic cell complex for the braid group, Norbert A'Campo -- Old and new regarding the Seiberg-Witten invariant conjecture, Andras Nemethi -- Multiplication by f in the Jacobian algebra as bindings in the spectrum of a hypersurface with an isolated singularity, Xavier Gomez-Mont -- Marked singularities, their moduli spaces, and atlases of stokes data, Claus Hertling -- Depth and regularity of powers of sums of ideals, Ngô Vit Trung -- Deforming non-normal isolated surface singularities, Jan Stevens -- Vanishing topology of Cohen-Macaulay codimension 2 3-folds, Anne Frühbis-Krüger -- Equisingular moduli of rational surface singularities, Jonathan Wahl -- Algebraic bubbling for vector bundles on surfaces, Günter Trautmann -- Recombination formulas for the spectrum of plane curve singularities, Dmitry Kerner -- Minors and categorical resolutions, Yuri Drozd -- Resolutions of cubical varieties, Joseph |

Steenbrink -- Hypersurfaces with 1-dimensional singularities, Dirk Siersma -- Higher order Euler characteristics, their generalizations and generating series, Sabir Gusein-Zade -- Torsion free sheaves on degenerate elliptic curves and the classical Yang–Baxter equation, Igor Burban -- Normal lattice polytopes, Winfried Bruns -- Möbius strips, knots, pentagons, polyhedra and the SURFER, Stephan Klaus -- Computational D-module theory and singularities, Viktor Levandovskyy -- Orbifold zeta functions for dual invertible polynomials, Wolfgang Ebeling -- Polarity maps, singular subschemes, and applications, Antonio Campillo -- Parallelisation in Singular, Hans Schönemann -- Milnor number, discriminant and unfolding of isolated singularities in positive characteristic, Duc Nguyen.

Sommario/riassunto

This book arose from a conference on “Singularities and Computer Algebra” which was held at the Pfalz-Akademie Lambrecht in June 2015 in honor of Gert-Martin Greuel’s 70th birthday. This unique volume presents a collection of recent original research by some of the leading figures in singularity theory on a broad range of topics including topological and algebraic aspects, classification problems, deformation theory and resolution of singularities. At the same time, the articles highlight a variety of techniques, ranging from theoretical methods to practical tools from computer algebra. Greuel himself made major contributions to the development of both singularity theory and computer algebra. With Gerhard Pfister and Hans Schönemann, he developed the computer algebra system SINGULAR, which has since become the computational tool of choice for many singularity theorists. The book addresses researchers whose work involves singularity theory and computer algebra from the PhD to expert level.
