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Bio-data

Birthdate December 12, 1941
Birthplace Heidelberg, Germany

Education

Universität Kiel	1963 - 1964
Universität Heidelberg	1964 - 1967
Purdue University	1967 - 1968,
Master of Science (mathematics)	
Lousiana State University	1968 - 1969,
PhD (mathematics)	
Universität Regensburg	1969 - 1974
Habilitation	

Positions held after PhD

Wissenschaftlicher Assistent	Universität Regensburg,	1969 - 1974
Universitätsdozent	Universität Regensburg,	1974 - 1975
Professor	Universität Duisburg-Essen,	1975 - 2009
Retired Professor	Universität Duisburg-Essen,	2009 -

Research grants

DFG Forschergruppe: From 1992 until 2001 Member of the DFG Research group
“Arithmetic and geometry”

(other members of the group: Esnault, Frey, Mueller-Stach, Viehweg)

DAAD Vigoni: 2002-2004

Several DFG Research grants between 1980 and 2007.

MSRI Research Professorship (Berkeley) 2012-2013

Honors

Since 2000 corresponding member of the Academia Peloritana dei Pericolanti di Messina.

Organization of conferences in:

Vechta, Essen, Oberwolfach, Messina, Catania, Trieste, Lahore, Banff, Osaka

Editorships

1. Mathematische Zeitschrift (Advisory Board 1980-1990)
2. Communications Algebra, 1992 – 2000.
3. Homology, Homotopy and Applications, 1999-2003.
4. Algebras and Representation Theory, 1998–2008
5. Bulletin Mathematique de la Societe des Sciences Mathematiques de la Roumanie, 2004–2008.
6. Bulletin of the Iranian Mathematical Society, 2004–2010
7. Geometric and combinatorial aspects of commutative algebra. Lecture Notes in Pure and Applied Mathematics, 217. Marcel Dekker, Inc., New York, 2001.
8. Commutative Algebra, Singularities and Computer Algebra, NATO Science Series, Vol. 115, 2003.
9. (with G. Restuccia) Geometric and combinatorial aspects of commutative algebra. Lecture Notes in Pure and Applied Mathematics, 217. Marcel Dekker, Inc., New York, 2001.
10. Acta Mathematica Vietnamica, since 2016

List of publication

BOOKS:

1. W. Bruns - J. Herzog, Cohen-Macaulay rings, Cambridge studies in advanced mathematics 39, Cambridge University Press, 1993.
2. J. Herzog, T. Hibi, Monomial Ideals, Graduate Text in Mathematics, Springer, 2011.
3. V. Ene, J. Herzog, Gröbner bases in Commutative Algebra. Graduate Studies in Mathematics, 130. American Mathematical Society, Providence, RI, 2012.
4. J. Herzog, T. Hibi, H. Ohsugi, Binomial Ideals, Graduate Text in Mathematics, Springer, 2018.

CONTRIBUTIONS TO BOOKS:

1. J. Herzog - E. Kunz, Der kanonische Modul eines Cohen-Macaulay Rings, Lecture Notes in Mathematics, Bd. 138 (1971)
2. W.V. Vasconcelos, Computational methods in commutative algebra and algebraic geometry. With chapters by David Eisenbud, Daniel R. Grayson, Jürgen Herzog and Michael Stillman. Algorithms and Computation in Mathematics, 2. Springer-Verlag, Berlin, 1998
3. J. Herzog, A survey on Stanley depth. In: Monomial ideals, computations and applications, 345, Lecture Notes in Math., 2083, Springer, Heidelberg, 2013.
4. J. Herzog, T. Hibi, Bounding the socles of powers of squarefree monomial ideals. In: Commutative Algebra and Noncommutative Algebraic Geometry, II, MSRI Publications, Volume 68, 2015, 223–230.
5. J. Herzog, L. Sharifan, M. Varbaro, An intriguing ring structure on the set of d-forms. In: Commutative Algebra and Noncommutative Algebraic Geometry, II, MSRI Publications, Volume 68, 2015, 231–244.
6. J. Herzog, H. Srinivasan, A note on the subadditivity problem for maximal shifts in free resolutions. In: Commutative Algebra and Noncommutative Algebraic Geometry, II, MSRI Publications, Volume 68, 2015, 245–250.

CONTRIBUTIONS TO PROCEEDINGS:

1. J. Herzog, T. Hibi, H. Ohsugi, Powers of componentwise linear ideals. Combinatorial aspects of commutative algebra and algebraic geometry, 49–60, Abel Symp., 6, Springer, Berlin, 2011.
2. V. Ene, J. Herzog, T. Hibi, Koszul binomial edge ideals. In "Bridging Algebra, Geometry, and Topology" Springer Proceedings in Mathematics & Statistics, Vol. 96, Ibadula, Denis, Veys, Willem (Eds.) page 125–136.

3. M. Bigdeli, J. Herzog, Betti diagrams with special shape. Homological and computational methods in commutative algebra, 33–52, Springer INdAM Ser., 20,
4. M. Bigdeli, J. Herzog, D. Lu, Toric rings, inseparability and rigidity. Multigraded algebra and applications, 4175, Springer Proc. Math. Stat., 238, Springer, Cham, 2018M.
5. V. Ene, J. Herzog, D. Stamate, Anticanonical modules of Segre products. Bull. Math. Soc. Sci. Math. Roumanie (N.S.) 60(108) (2017), 373-386.

ARTICLES:

1. J. Herzog, Die Kählerschen Differenten verallgemeinerter Halbgruppenringe, Arch. Math. XXI, 278-283 (1970)
2. J. Herzog, Generators and Relations of Abelian Semigroups and Semigroup Rings, manuscripta math. 3., 175-193 (1970)
3. J. Herzog - E. Kunz, Die Wertehalbgruppe eines lokalen Rings der Dimension I, Ber. Heidelberger Akad. Wiss. 2. Abh. (1971)
4. J. Herzog - E. Kunz, On the deviation and the type of a Cohen-Macaulay ring, manuscripta math. 12, 217-248 (1974)
5. J. Herzog, Certain Complexes associated to a Sequence and a Matrix, manuscripta math. 12, 217-248 (1974)
6. J. Herzog, Ringe der Charakteristik p und Frobeniusfunktoren, Math. Z. 67-78 (1974)
7. J. Herzog - R. Waldi, A note on the Hilbertfunction of a one-dimensional Cohen-Macaulay ring, manuscripta math. 16, 251-260 (1975)
8. J. Herzog, Algebra retracts and Poincaré-series, manuscripta math. 21, 307-314 (1977)
9. J. Herzog - M. Steurich, Berechnung einiger Poincaré-Reihen, Fund. Math. 127-145 (1980)
10. J. Herzog - M. Steurich, Two applications of change of ring theorems for Poincaré series, Proc. of the A.M.S. 73(2), 163-168 (1979)

11. J. Herzog - M. Steurich, Golodideale der Gestalt $a \cap b$, J. of Alg. 58(1), 31-36 (1979)
12. J. Herzog, Ringe mit nur endlich vielen Isomorphieklassen von maximalen Cohen-Macaulay Moduln, Math. Ann. 233, 21-34 (1978)
13. J. Herzog, Ein Cohen-Macaulay Kriterium mit Anwendungen auf den Konormalenmodul und Differentialmodul, Math. Z. 163, 149-162 (1978)
14. J. Herzog, Eindimensionale fast-vollständige Durchschnitte sind nicht starr, manuscripta math. 30, 1-19 (1979)
15. J. Herzog, Deformation of certain Gorenstein singularities, Lecture Notes in Math. 740, 230-236 (1979)
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17. J. Herzog, When is a regular sequence super regular?, Nagoya Math. J. 83, 183-195 (1981)
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19. J. Herzog, Strict local rings, Proc. of the AMS. 84(2), 165-172 (1982)
20. J. Herzog, Homological properties of the module of differentials, Colecao Atas, Sociedade Brasileira de Mat. 14, 33-64 (1981)
21. J. Herzog - A. Simis - W. Vasconcelos, Approximation complexes and blowing-up rings I, J. of Alg. 74(2), 466-493 (1982)
22. J. Herzog - A. Simis - W. Vasconcelos, Approximations complexes and blowing-up rings II, J. of Alg. 82(1), 53-83 (1983)
23. J. Herzog - A. Simis - W. Vasconcelos, Koszul homology and blowing-up rings, Lecture Notes in Pure and Applied Mathematics, Commutative Algebra (Marcel Dekker) 84, 79-171 (1981)

24. J. Herzog, Necessary conditions for an analytic algebra to be strict, *Commutative Algebra*, Durham 1981, London Math. Soc. Lecture Notes Series 72, 163-169 (1981)
25. J. Herzog - R. Waldi, Linkage invariants of curve singularities, *Arch. Math.* 42, 335-343 (1984)
26. J. Herzog - M. Kühl, On the Betti numbers of pure and linear resolutions, *Communications in Alg.*, 12 (13), 1627-1646 (1984)
27. J. Herzog - W. Vasconcelos - A. Simis, On the arithmetic and homology of algebras of linear type, *Transactions of the AMS*, 283(2), 661-683 (1984)
28. J. Herzog - W. Vasconcelos, On the divisor class group of Rees-Algebras, *J. of Alg.* 93(1), 182-188 (1985)
29. J. Herzog - W. Vasconcelos - R. Villareal, Ideals with sliding depth, *Nagoya Math. J.* 99, 159-172 (1985)
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32. J. Herzog - M. E. Rossi - G. Valla, On the depth of the symmetric algebra, *Transactions of the American Mathematical Society*, 269(2), 577-606 (1986)
33. J. Herzog, Matrix factorizations of real quadratic forms, *Colicao Atas, Sociedade Brasileira de Mat* 17, 105-127 (1986)
34. J. Herzog, Linear maximal Cohen-Macaulay modules on integral quadrics, in: *Séminaire d'Algèbre, Paul Dubreil et Marie-Paule Malliavin Proceedings, Paris, 1296*, 214-227 (1986)
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37. J. Brennan - J. Herzog - B. Ulrich, Maximally generated Cohen-Macaulay modules, Math. Scand. 61, 131-103 (1987)
38. J. Herzog - H. Sanders, The Grothendieck group of invariant rings and of simple hypersurface singularities, in: 'Singularities, Representations of Algebras and Vector Bundles' (Eds. Greuel, Trautmann), Lecture Notes in Mathematics 1273, 134-149 (1987)
39. J. Herzog - H. Sanders, Indecomposable syzygy-modules of high rank over hypersurface rings, J. of Pure and Appl. Alg. 51, 161-168 (1988)
40. D. Eisenbud - J. Herzog, The classification of homogeneous Cohen-Macaulay rings of finite representation type, Math. Ann. 280, 347-352 (1988)
41. J. Backelin - J. Herzog - H. Sanders, Matrix factorizations of homogeneous polynomials, in: Lecture Notes in Math. 1352, 1-33 (1988)
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43. J. Herzog - B. Ulrich, Self-linked space curve singularities, Nagoya Math. J. 120, 129-153, (1990)
44. J. Herzog, Tensorproducts of Clifford-modules and linear maximal Cohen-Macaulay modules on quadrics, in: 'Topic in Algebra', Banach Center Publications 26(2), 125-140, (1990)
45. J. Herzog, A homological approach to symbolic powers, in: 'Commutative Algebra', Lecture Notes in Mathematics 1430, 32-46 (1990)
46. J. Herzog - A. Simis - W. Vasconcelos, Arithmetic of normal Rees-algebras, J. of Alg. 143, 269-294 (1991).

47. J. Herzog - E.Marco - R. Waldi, The Grothendieck group of a quotient singularity defined by a finite abelian group, *J. of Alg.* 149(1), 122-138 (1992)
48. J. Backelin - J. Herzog - B. Ulrich, Linear maximal Cohen-Macaulay modules over complete intersections, *J. of Pure and Appl. Algebra* 71, 187-202 (1991).
49. W. Brown - J. Herzog, One dimensional local rings of maximal and almost maximal length, *J. of Alg.* 151, 332-346 (1992).
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51. J. Herzog - N. V. Trung - B. Ulrich, On the multiplicity of blow-up rings of ideals generated by d -sequences, *J. of Pure and Appl. Alg.* 80, 273-297 (1992).
52. J. Herzog, On two-dimensional quasihomogeneous singularities, II, *Arch. Math.* 59, 556-561 (1992).
53. J. Herzog, On the multiplicity of certain Rees-rings and determinantal rings, *Notas de Investigación* 6, 29-32 (1992).
54. J. Herzog, Canonical Koszul cycles, *Aportaciones Matemáticas, Notas de Investigación* 6, 33-41 (1992).
55. W. Bruns - J. Herzog, On the computation of a -invariants, *Manuscripta Math.* 77, 201-213 (1992)
56. J. Herzog - A. Martsinkovsky, Glueing Cohen-Macaulay modules with applications to quasihomogeneous complete intersections with isolated singularities, *Comment. Math. Helvetici* 68, 365-384 (1993).
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61. W. Bruns - J. Herzog - U. Vetter, Syzygies and walks, in: 'Commutative Algebra' (Eds. Simis, Trung, Valla), 36-57, World Scientific, 1994.

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65. W. Bruns - J. Herzog, On multigraded resolutions, *Math. Proc. Cambridge Phil. Soc.* 118, 234-251 (1995).
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69. W. Bruns - J. Herzog, Semigroup rings and simplicial complexes. *J. Pure Appl. Algebra* 122 (1997), no. 3, 185–208.
70. J. Herzog - T. Hibi, Upper bounds for the number of facets of a simplicial complex. *Proc. Amer. Math. Soc.* 125 (1997), no. 6, 1579–1583.
71. A. Conca - J. Herzog - N. V. Trung - G. Valla, Diagonal subalgebras of bigraded algebras and embeddings of blow-ups of projective spaces. *Amer. J. Math.* 119 (1997), no. 4, 859–901.
72. A. Aramova - J. Herzog, p -Borel principal ideals. *Illinois J. Math.* 41 (1997), no. 1, 103–121.
73. A. Aramova - J. Herzog - T. Hibi, Gotzmann theorems for exterior algebras and combinatorics. *J. Algebra* 191 (1997), no. 1, 174–211.
74. A. Aramova - J. Herzog - T. Hibi, Weakly stable ideals. *Osaka J. Math.* 34 (1997), no. 4, 745–755.
75. S. Cutkosky - J. Herzog, Cohen-Macaulay coordinate rings of blowup schemes. *Comment. Math. Helv.* 72 (1997), no. 4, 605–617.
76. A. Conca, J. Herzog, Ladder determinantal rings have rational singularities. *Adv. Math.* 132 (1997), no. 1, 120–147.
77. A. Aramova - J. Herzog - T. Hibi, Squarefree lexsegment ideals. *Math. Z.* 228 (1998), no. 2, 353–378.

78. E. De Negri J. Herzog, Completely lexsegment ideals. *Proc. Amer. Math. Soc.* 126 (1998), no. 12, 3467–3473.
79. J. Herzog - Y. Kamoi, Taylor complexes for Koszul boundaries. *Manuscripta Math.* 96 (1998), no. 2, 133–147.
80. A. Aramova, E. - De Negri - J. Herzog Lexsegment ideals with linear resolution. *Illinois J. Math.* 42 (1998), no. 3, 509–523.
81. J. Herzog - D. Popescu, Hilbert functions and generic forms. *Compositio Math.* 113 (1998), no. 1, 1–22.
82. J. Herzog - V. Reiner - V. Welker, The Koszul property in affine semigroup rings. *Pacific J. Math.* 186 (1998), no. 1, 39–65.
83. A. Aramova - J. Herzog - T. Hibi, Squarefree lexsegment ideals. *Math. Z.* 228 (1998), no. 2, 353–378.
84. J. Herzog - N. Terai, Stable properties of algebraic shifting. *Results Math.* 35 (1999), no. 3-4, 260–265.
85. J. Herzog - T. Hibi. Componentwise linear ideals. *Nagoya Math. J.* 153 (1999), 141–153.
86. D. Cutkosky - J. Herzog - N.V. Trung, Asymptotic behaviour of the Castelnuovo-Mumford regularity. *Compositio Math.* 118 (1999), no. 3, 243–261.
87. J. Herzog V. - Reiner - V. Welker, Componentwise linear ideals and Golod rings. *Michigan Math. J.* 46 (1999), no. 2, 211–223.
88. J. Herzog - E. Li Marzi, Bounds for the Betti numbers of shellable simplicial complexes and polytopes. *Commutative algebra and algebraic geometry (Ferrara)*, 157–167, *Lecture Notes in Pure and Appl. Math.*, 206, Dekker, New York, 1999.
89. A. Aramova J. Herzog -T- Hibi, Shifting operations and graded Betti numbers. *J. Algebraic Combin.* 12 (2000), no. 3, 207–222.
90. H. Ohsugi - J. Herzog -T. Hibi, Combinatorial pure subrings. *Osaka J. Math.* 37 (2000), no. 3, 745–757.
91. A. Aramova J. Herzog, Almost regular sequences and Betti numbers. *Amer. J. Math.* 122 (2000), no. 4, 689–719.
92. A: Aramova - J. Herzog - T. Hibi, Ideals with stable Betti numbers. *Adv. Math.* 152 (2000), no. 1, 72–77.
93. A. Aramova - J. Herzog - T. Hibi, Finite lattices and lexicographic Gröbner bases. *European J. Combin.* 21 (2000), no. 4, 431–439.
94. J. Herzog - T. Hibi - G. Restuccia, Strongly Koszul algebras. *Math. Scand.* 86 (2000), no. 2, 161–178.

95. A. Aramova - L. - Avramov - J. Herzog. Resolutions of monomial ideals and cohomology over exterior algebras. *Trans. Amer. Math. Soc.* 352 (2000), no. 2, 579–594.
96. J. Herzog - D. Popescu, On the regularity of p -Borel ideals. *Proc. Amer. Math. Soc.* 129 (2001), no. 9, 2563–2570.
97. J. Herzog - G. Restuccia, Regularity functions for homogeneous algebras. *Arch. Math. (Basel)* 76 (2001), no. 2, 100–108. 13
98. J. Herzog - D. Popescu, On the regularity of p -Borel ideals, *Proc. Amer. Math. Soc.* 129 (2001), no. 9, 2563–2570.
99. J. Herzog - G. Restuccia, Z. Tang, s -sequences and symmetric algebras, *Manuscripta Math.* 104 (2001), no. 4, 479–501.
100. J. Herzog, Generic initial ideals and graded Betti numbers. *Computational commutative algebra and combinatorics (Osaka, 1999)*, 75–120, *Adv. Stud. Pure Math.*, 33, Math. Soc. Japan, Tokyo, 2002
101. J. Herzog - E. Sbarra, Sequentially Cohen-Macaulay modules and local cohomology. *Algebra, arithmetic and geometry, Part I, II (Mumbai, 2000)*, 327–340, *Tata Inst. Fund. Res. Stud. Math.*, 16,
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103. J. Herzog - Le T. Hoa - N.V. Trung, Asymptotic linear bounds for the Castelnuovo-Mumford regularity. *Trans. Amer. Math. Soc.* 354 (2002), no. 5, 1793–1809.
104. J. Herzog - D. Popescu - N.V. Trung, Regularity of Rees algebras. *J. London Math. Soc.* (2) 65 (2002), no. 2, 320–338.
105. A. Aramova, J. Herzog, T. Hibi, Shellability of semigroup rings. *Nagoya Math. J.* 168 (2002), 65–84.
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107. J. Herzog - T. Hibi, Discrete polymatroids. *J. Algebraic Combin.* 16 (2002), no. 3, 239–268.
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109. J. Herzog - D. Popescu -M. Vladioiu, On the Ext-modules of ideals of Borel type. *Commutative algebra (Grenoble/Lyon, 2001)*. *Contemp. Math.*, 331 (2003), 171–186, Amer. Math. Soc., Providence, RI,
110. J. Herzog - L. O’Carroll - D. Popescu, Explicit linear minimal free resolutions over a natural class of Rees algebras. *Arch. Math.* 81 (2003), 636–645.

111. J. Herzog- N. Zamani, Vanishing and Duality of generalized local cohomology. *Arch. Math.* 81 (2003), 512–519.
112. J. Herzog - Z. Tang - S. Zarzuela, Symmetric and Rees Algebras of Koszul cycles and their Gröbner bases. *Manuscripta Math.* 112(4) (2003), 489–509.
113. D. Cutkosky - J. Herzog - A. Reguera, Poincare series of resolutions of surface singularities. *Trans. Amer. Math. Soc.* 356(5) (2004), 1833-1874.
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117. A. Conca, J. Herzog - T. Hibi, Rigid resolutions and big Betti numbers. *Comm. Math. Helv.* 79(4) (2004), 826–838.
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119. J. Herzog - T. Hibi, Distributive Lattices, Bipartite Graphs and Alexander Duality. *J. Algebraic Combin.* 22 (2005), no. 3, 289–302.
120. J. Herzog - Y. Takayama - N. Terai, On the radical of a monomial ideal. *Arch. Math.* (Basel) 85 (2005), no. 5, 397–408.
121. J. Herzog - T. Hibi, The depth of powers of an ideal. *J. Algebra* 291 (2005), no. 2, 534–550.
122. J. Herzog - S. Iyengar, Koszul modules. *J. Pure Appl. Algebra* 201 (2005), no. 1-3, 154–188.
123. J. Herzog - T. Hibi, Cohen-Macaulay polymatroidal ideals. *J. Combin. Theory Ser. A* 113 (2006), no. 5, 911–916.
124. J. Herzog - T. Hibi - X. Zheng, The monomial ideal of a finite meet semi-lattice. *Trans. Amer. Math. Soc.* 358 (2006), no. 9, 4119–4134
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129. J. Herzog - X. Zheng, Notes on the multiplicity conjecture. *Collect. Math.* 57 (2006), no. 2, 211–226.
130. J. Herzog -A. Rahimi, Local Duality for Bigraded Modules. *Illinois J. Math.* 51 (2007), no. 1, 137–150
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134. J. Herzog, T. Hibi, N.V. Trung, X. Zheng, Standard graded vertex cover algebras, cycles and leaves. *Trans. Amer. Math. Soc.* 360 (2008), no. 12, 6231–6249.
135. J. Herzog, A. Soleyman Jahan, S. Yassemi, Stanley decompositions and partitionable simplicial complexes. *J. Algebraic Combin.* 27 (2008), no. 1, 113–125.
136. J. Herzog T. Hibi, S. Murai, N. V. Trung, X. Zheng, Kruskal-Katona type theorems for clique complexes arising from chordal and strongly chordal graphs, *Combinatorica* 28 (3) (2008), 315-323.
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