

Ulrich W. Kulisch

Selected Publications

- *High speed exception-free interval arithmetic, from closed and bounded real intervals to connected sets of real numbers*, pp. 1-10, to be published 2019.
- *Up-to-date Interval Arithmetic -- From Closed and Bounded Intervals to Connected Sets of Real Numbers*, Springer LNCS 9574, pp. 413 - 434, 2016.
- *Mathematics and Speed for Interval Arithmetic – A Complement to IEEE 1788*, As preprint available since January 2014, published in: ACM Transactions on Mathematical Software, Vol. 45, No. 1, Article 5, March 2019.
- *High Speed Associative Accumulation of Floating-point Numbers and Floating-point Intervals*, with G. Bohlender, Reliable Computing, pp. 141-153, 2016.
- *An Axiomatic Approach to Computer Arithmetic with an Appendix on Interval Hardware*, Lecture Notes in Computer Science, Springer, Vol. 7204, pp. 484 – 495, 2012.
- *Complete Interval Arithmetic and its Implementation on the Computer*, in Numerical Validation in Current Hardware Architectures, Springer LNCS 5492, pp. 7-28, 2009, edited by A. Cuyt et al.
- *Begegnungen eines Mathematikers mit Informatik*, IWRMM-Preprint Nr. 08/08. Vortrag, gehalten anlässlich des 75. Geburtstages des Autors.
- *Computer Arithmetic and Validity - Theory, Implementation, and Applications*, de Gruyter, 2008, 426 pages. Second edition 2013, 447 pages.
- *Letters to the IEEE Computer Arithmetic Standards Revision Group*, 2006. IWRMM-Preprint Nr.06/05, and <http://www.math.uni-wuppertal.de/wrswt/literatur.html>. See also: *Basic Requirements for a Future Floating-Point Arithmetic Standard*. GAMM-Fachausschuss on Computer Arithmetic and Scientific Computing, 2006. <http://www.math.uni-wuppertal.de/wrswt/literatur.html>.
- *Hardware Support for Interval Arithmetic*. Reliable Computing, Vol. 12, No. 3, pp. 225-237, 2006, with R. Kirchner.
- *Die Anfänge des Rechenzentrums und der Informatik an der Universität Karlsruhe*, in Fridericana, Zeitschrift der Universität Karlsruhe (TH), Heft 59, 25-40, 2002.
- *Advanced Arithmetic for the Digital Computer – Design of Arithmetic Units*. Springer-Verlag, 2002.
- *Advanced Arithmetic for the Digital Computer - Interval Arithmetic Revisited*. In: Perspectives on Enclosure Methods, Springer-Verlag, pp. 15-75, 2001, edited by U. Kulisch, R. Lohner, and A. Facius.

- *Advanced Arithmetic for the Digital Computer - Design of Arithmetic Units*. Electronic Notes in Theoretical Computer Science 24, 1999.
<http://www.elsevier.nl/locate/entcs/volume24.html>, 72 pages.
- *Numerical Toolbox for Verified Computing – Basic Numerical Problems. Theory, Algorithms, and Pascal-XSC Programs*. Springer-Verlag, 1993, with R. Hammer, M. Hocks, D. Ratz. Russian translation, MIR publisher, Moscow, 2005.
- *PASCAL-XSC - Language Reference with Examples*. Russian translation, MIR publisher, Moscow, 1997, with R. Klatte, M. Neaga, D. Ratz, Ch. Ullrich. Second edition, 2000, third edition, 2006.
- *Computer, Arithmetik und Numerik - ein Memorandum*. Überblicke Mathematik 1998, 19-54, Vieweg, Wiesbaden, 1998. (Herrn K. Zuse zum 85. Geburtstag gewidmet).
- *Numerical Algorithms with Automatic Result Verification*. Lectures in Applied Mathematics, Vol. 32, AMS, The Mathematics of Numerical Analysis, pp. 471 - 502, 1996. Editors J. Renegar, M. Shub and Steve Smale.
- *C++ Toolbox for Verified Computing*. Springer-Verlag, 1995, with R. Hammer, M. Hocks, D. Ratz.
- *Genauer und trotzdem schneller, Ein neuer Coprozessor für hochgenaue Matrix- und Vektoroperationen*. Elektronik 26, 52 - 56, 1994, with T. Teufel and B. Höfflinger.
- *PASCAL-XSC - Language Reference with Examples*, with R. Klatte, M. Neaga, D. Ratz, Ch. Ullrich, Springer-Verlag, Berlin/Heidelberg/New York, 1992, (1 – 345).
- *PASCAL-XSC, Sprachbeschreibung mit Beispielen*, with R. Klatte, M. Neaga, D. Ratz, Ch. Ullrich, Springer-Verlag, Berlin/Heidelberg/New York, 1991, (1 – 345).
- *Computer Arithmetic in Theory and Practice*, with W. L. Miranker, IBM Research Center Report, RC 7776, 1979, and Academic Press, 1981, (1 – 249).
- *Grundlagen des Numerischen Rechnens – Mathematische Begründung der Rechnerarithmetik*, Reihe Informatik, Band 19, Bibliographisches Institut Mannheim/Wien/Zürich, 1976, (1 – 467).
- *An axiomatic approach to rounded computations*, Mathematics Research Center, The University of Wisconsin, Madison, Wisconsin, Technical Summary Report Nr. 1020, 1 – 29, 1969 und Num. Math. 18, 1 – 17, 1971.