1. Record Nr. UNINA9910452844603321

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| Autore | Kulisch Ulrich |
| Titolo | Computer arithmetic and validity [[electronic resource] ] : theory, implementation, and applications / / Ulrich Kulisch |
| Pubbl/distr/stampa | Berlin, : De Gruyter, 2013 |
| ISBN | 3-11-030179-2 |
| Edizione | [2nd ed.] |
| Descrizione fisica | 1 online resource (434 p.) |
| Collana | De Gruyter Studies in Mathematics ; ; 33<br>De Gruyter studies in mathematics, , 0179-0986 ; ; 33 |
| Disciplina | 005.101/5113 |
| Soggetti | Computer arithmetic<br>Computer arithmetic and logic units<br>Floating-point arithmetic<br>Electronic books. |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Note generali | Description based upon print version of record. |
| Nota di bibliografia | Includes bibliographical references and index. |
| Nota di contenuto | Frontmatter -- Foreword to the second edition -- Preface -- Contents -- Introduction -- Part I. Theory of computer arithmetic -- Chapter 1. First concepts -- Chapter 2. Ringoids and vectoids -- Chapter 3. Definition of computer arithmetic -- Chapter 4. Interval arithmetic -- Part II. Implementation of arithmetic on computers -- Chapter 5. Floating-point arithmetic -- Chapter 6. Implementation of floating-point arithmetic on a computer -- Chapter 7. Hardware support for interval arithmetic -- Chapter 8. Scalar products and complete arithmetic -- Part III. Principles of verified computing -- Chapter 9. Sample applications -- Appendix A. Frequently used symbols -- Appendix B. On homomorphism -- Bibliography -- List of figures -- List of tables -- Index |
| Sommario/riassunto | This is the revised and extended second edition of the successful basic book on computer arithmetic. It is consistent with the newest recent standard developments in the field. The book shows how the arithmetic and mathematical capability of the digital computer can be enhanced in a quite natural way. The work is motivated by the desire and the need to improve the accuracy of numerical computing and to control the quality of the computed results (validity). The accuracy requirements |

for the elementary floating-point operations are extended to the customary product spaces of computations including interval spaces. The mathematical properties of these models are extracted into an axiomatic approach which leads to a general theory of computer arithmetic. Detailed methods and circuits for the implementation of this advanced computer arithmetic on digital computers are developed in part two of the book. Part three then illustrates by a number of sample applications how this extended computer arithmetic can be used to compute highly accurate and mathematically verified results. The book can be used as a high-level undergraduate textbook but also as reference work for research in computer arithmetic and applied mathematics.

2. Record Nr. UNINA9910433226703321

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| Autore | Möller Jens-Henning |
| Titolo | Time-Periodic Solutions to the Equations of Magnetohydrodynamics with Background Magnetic Field / Jens-Henning Möller |
| Pubbl/distr/stampa | Berlin/Germany, : Logos Verlag Berlin, 2020<br>[s.l.] : , : Logos Verlag Berlin, , 2020 |
| Descrizione fisica | 1 electronic resource (145 p.) |
| Soggetti | Differential calculus & equations |
| Lingua di pubblicazione | Inglese |
| Formato | Materiale a stampa |
| Livello bibliografico | Monografia |
| Sommario/riassunto | In the first part of this thesis we extend the theory of anisotropic Triebel-Lizorkin spaces to time-periodic functions. In particular, the spatial trace space is determined together with the existence of extension operators. Additionally, some results regarding pointwise multiplication are provided. As a preparation for this theory we prove a transference principle for multipliers with values in the spaces of summable sequences. Secondly, we consider the equations of magnetohydrodynamics with a background magnetic field and time- |

periodic forcing. Maximal regularity of the time-periodic linear problem is established by applying the results of the first part. The existence of a solution to the non-linear problem is shown for a large class of background magnetic fields via a fixed-point argument.