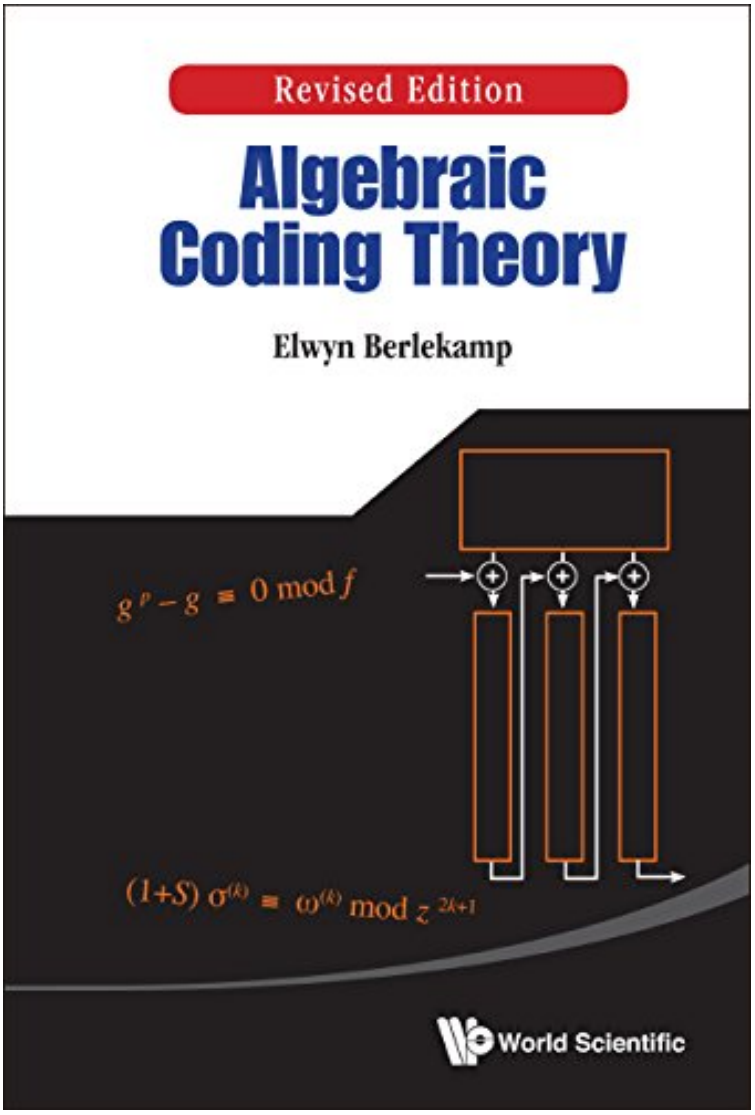
Algebraic Coding Theory



Par Elwyn R Berlekamp
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Description :

Prsentation de l'diteurThis is the revised edition of Berlekamp's famous book, "Algebraic Coding Theory", originally published in 1968, wherein he introduced several algorithms which have subsequently dominated engineering practice in this field. One of these is an algorithm for decoding Reed-Solomon and BoseChaudhuriHocquenghem codes that subsequently became known as the BerlekampMassey Algorithm. Another is the Berlekamp algorithm for factoring polynomials over finite fields, whose later extensions and embellishments became widely used in symbolic manipulation systems. Other novel algorithms improved the basic methods for doing various arithmetic operations in finite fields of characteristic two. Other major research contributions in this book included a new class of Lee metric codes, and precise asymptotic results on the number of information symbols in long binary BCH codes.Selected chapters of the book became a

standard graduate textbook.Both practicing engineers and scholars will find this book to be of great value.Revue de pressePracticing engineers, lecturers and scholars will find this book of great value. -- Zentralblatt MATHMost of the book's chapters also provide code implementations and other concepts with respect to circuits, so it is quite useful for engineers. The strong point of the book is its detailed discussions on decoding methods and algorithms for solving corresponding equations over finite fields. The book introduces readers to each concept in a joyful manner. It is also useful for computer scientists, as most of the algorithms are given in detail with motivations. The book is a source of beautiful mathematics, so it always attracts mathematicians. All three types of readers must have this book; I strongly recommend it. -- Computing sPrsentation de l'diteurThis is the revised edition of Berlekamp's famous book, "Algebraic Coding Theory", originally published in 1968, wherein he introduced several algorithms which have subsequently dominated engineering practice in this field. One of these is an algorithm for decoding Reed-Solomon and BoseChaudhuriHocquenghem codes that subsequently became known as the BerlekampMassey Algorithm. Another is the Berlekamp algorithm for factoring polynomials over finite fields, whose later extensions and embellishments became widely used in symbolic manipulation systems. Other novel algorithms improved the basic methods for doing various arithmetic operations in finite fields of characteristic two. Other major research contributions in this book included a new class of Lee metric codes, and precise asymptotic results on the number of information symbols in long binary BCH codes.Selected chapters of the book became a standard graduate textbook.Both practicing engineers and scholars will find this book to be of great value.