



Coding Theory and Number Theory

By T. Hiramatsu

Springer. Paperback. Book Condition: New. Paperback. 148 pages. Dimensions: 9.0in. x 6.1in. x 0.6in. This book grew out of our lectures given in the Oberseminar on Coding Theory and Number Theory at the Mathematics Institute of the Würzburg University in the Summer Semester, 2001. The coding theory combines mathematical elegance and some engineering problems to an unusual degree. The major advantage of studying coding theory is the beauty of this particular combination of mathematics and engineering. In this book we wish to introduce some practical problems to the mathematician and to address these as an essential part of the development of modern number theory. The book consists of five chapters and an appendix. Chapter 1 may mostly be dropped from an introductory course of linear codes. In Chapter 2 we discuss some relations between the number of solutions of a diagonal equation over finite fields and the weight distribution of cyclic codes. Chapter 3 begins by reviewing some basic facts from elliptic curves over finite fields and modular forms, and shows that the weight distribution of the Melas codes is represented by means of the trace of the Hecke operators acting on the space of cusp forms....



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