



Binary Linear Codes, Binary Matrices and graphs

By Harzalla, Driss

Condition: New. Publisher/Verlag: LAP Lambert Academic Publishing | An efficient method for computing the automorphism groups | After the second World War, Claude Shannon formalized the information theory as a branch of mathematics, posing the problems of reliability and security. Reliability deals with the ability to transmit without error a message despite alterations in communication: it is treated by error correcting codes theory. In 1950, Richard Wesley Hamming worked with Shannon on this subject. He used vector spaces of finite dimension over finite fields to formalize operational framework to the theory and find the first examples of optimal correcting codes. This approach gave rise to the linear codes theory. The automorphism group is useful in: determining the structure of codes, computing weight distributions of codes, determining whether two codes are equivalent, in some decoding algorithms and in group theory. Recall that the classification of finite simple groups has been completed thanks to sporadic groups such as Mathieu groups which was realized as the automorphism group of Golay codes. This book consists of four Chapter and an Annex. It is intended for PhD students and future engineers. It is also useful for researchers interested in topics of coding theory and cryptography....



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