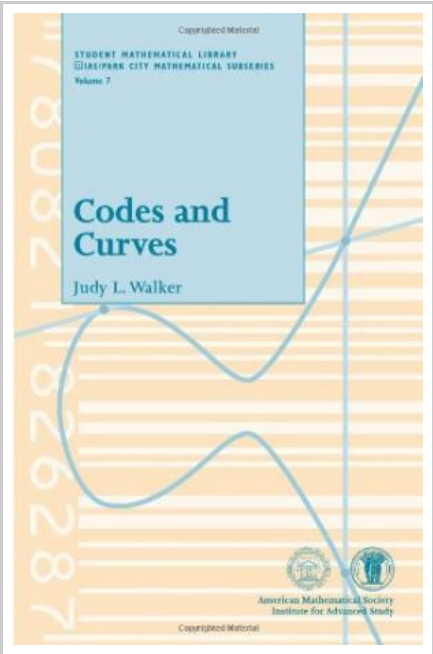


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Codes and Curves

By Judy L. Walker

American Mathematical Society. Paperback. Book Condition: new. BRAND NEW, Codes and Curves, Judy L. Walker, When information is transmitted, errors are likely to occur. This problem has become increasingly important as tremendous amounts of information are transferred electronically every day. Coding theory examines efficient ways of packaging data so that these errors can be detected, or even corrected. The traditional tools of coding theory have come from combinatorics and group theory. Since the work of Goppa in the late 1970s, however, coding theorists have added techniques from algebraic geometry to their toolboxes. In particular, by re-interpreting the Reed-Solomon codes as coming from evaluating functions associated to divisors on the projective line, one can see how to define new codes based on other divisors or on other algebraic curves. For instance, using modular curves over finite fields, Tsfasman, Vladut, and Zink showed that one can define a sequence of codes with asymptotically better parameters than any previously known codes. This monograph is based on a series of lectures the author gave as part of the IAS/PCMI program on arithmetic algebraic geometry. Here, the reader is introduced to the exciting field of algebraic geometric coding theory. Presenting the material in the same...

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