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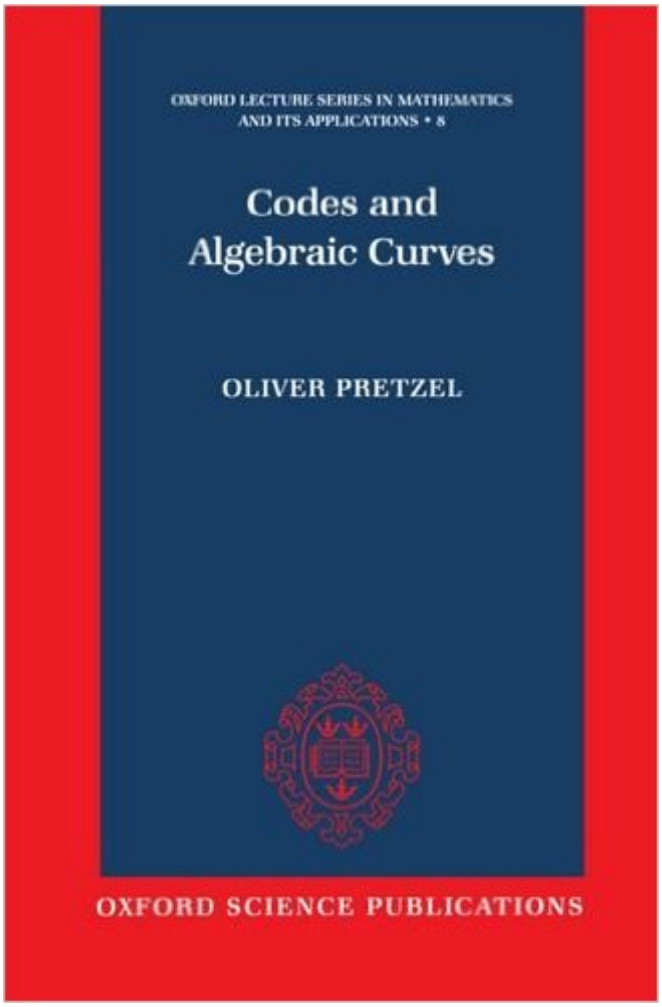
Codes And Algebraic Curves (Oxford Lecture Series In Mathematics And Its Applications)



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Synopsis

A fascinating branch of mathematics since antiquity, the geometry of curves has been extensively developed and become highly abstract. Recently links have been made with the subject of error correction, leading to the creation of geometric Goppa codes, a new and important area of coding theory. This book is an expanded and updated version of one part of the author's successful book Error-Correcting Codes and Finite Fields. Here he gives an elementary introduction to Goppa codes and includes many examples, calculations, and applications. The first part of the book emphasizes motivations, giving precedence to applications over proofs. The second part then provides the formal theory, with some concepts and proofs simplified without sacrificing rigor.

Book Information

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Customer Reviews

This is the best book I've seen explaining Goppa codes and their mathematical background. The explanation of algebraic curves is much easier to follow than the other two books I know of on this topic, "Algebraic Function Fields and Codes" by Stichtenoth and "Algebraic Curves over Finite Fields" by Moreno. In fact, even if you aren't especially interested in Goppa codes, this would be a good book from which to learn the basics of algebraic curves.The book has one of the few treatments of algebraic curves that explains them first concretely as zeros of a polynomial f(x,y), and then more abstractly as a function field, a finite extension of K(x).

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