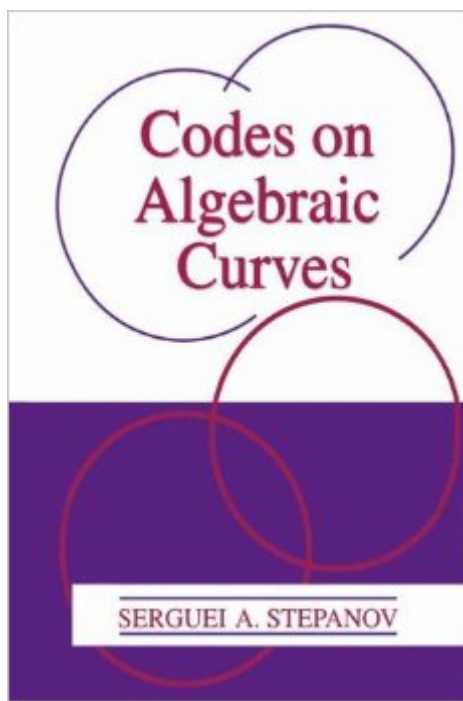# Codes On Algebraic Curves

Synopsis

This is a self-contained introduction to algebraic curves over finite fields and geometric Goppa codes. There are four main divisions in the book. The first is a brief exposition of basic concepts and facts of the theory of error-correcting codes (Part I). The second is a complete presentation of the theory of algebraic curves, especially the curves defined over finite fields (Part II). The third is a detailed description of the theory of classical modular curves and their reduction modulo a prime number (Part III). The fourth (and basic) is the construction of geometric Goppa codes and the production of asymptotically good linear codes coming from algebraic curves over finite fields (Part IV). The theory of geometric Goppa codes is a fascinating topic where two extremes meet: the highly abstract and deep theory of algebraic (specifically modular) curves over finite fields and the very concrete problems in the engineering of information transmission. At the present time there are two essentially different ways to produce asymptotically good codes coming from algebraic curves over a finite field with an extremely large number of rational points. The first way, developed by M. A. Tsfasman, S. G. Vladut and Th. Zink [210], is rather difficult and assumes a serious acquaintance with the theory of modular curves and their reduction modulo a prime number. The second way, proposed recently by A.

Book Information

Codes and Algebraic Curves (Oxford Lecture Series in Mathematics and Its Applications) Codes on Algebraic Curves Secrets of Making and Breaking Codes: A Hands-on Guide to Both Simple and

Sophisticated Codes to Easily Help You Become a Codemaster Black & Decker Codes for Homeowners, Updated 3rd Edition: Electrical - Mechanical - Plumbing - Building - Current with 2015-2017 Codes (Black & Decker Complete Guide) LISP, Lore, and Logic: An Algebraic View of LISP Programming, Foundations, and Applications Introduction to Coding Theory and Algebraic Geometry (Oberwolfach Seminars) Handbook of Coding Theory, Volume 1: Part 1 : Algebraic Coding The Art of Dressing Curves: The Best-Kept Secrets of a Fashion Stylist Bettie Page: Queen of Curves Girls Get Curves: Geometry Takes Shape Strong Curves: A Woman's Guide to Building a Better Butt and Body The Codes Guidebook for Interiors Building Codes Illustrated: A Guide to Understanding the 2015 International Building Code Building Codes Illustrated: A Guide to Understanding the 2012 International Building Code Top Secret: A Handbook of Codes, Ciphers and Secret Writing Alpha, Bravo, Charlie: The Complete Book of Nautical Codes Fortran Codes for Mathematical Programming: Linear, Quadratic and Discrete Introduction to the Theory of Error-Correcting Codes Error Correcting Codes: A Mathematical Introduction (Chapman Hall/CRC Mathematics Series) Fundamentals of Error-Correcting Codes

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