Introduction to Coding Theory and Algebraic Geometry

By J. van Lint

Birkhäuser Okt 2011, 2011. Taschenbuch. Book Condition: Neu. 250x170x5 mm. Neuware - These notes are based on lectures given in the semmar on 'Coding Theory and Algebraic Geometry' held at Schloss Mickeln, Diisseldorf, November 16-21, 1987. In 1982 Tsfasman, Vladut and Zink, using algebraic geometry and ideas of Goppa, constructed a seqeunce of codes that exceed the Gilbert-Varshamov bound. The result was considered sensational. Furthermore, it was surprising to see these unrelated areas of mathematics collaborating. The aim of this course is to give an introduction to coding theory and to sketch the ideas of algebraic geometry that led to the new result. Finally, a number of applications of these methods of algebraic geometry to coding theory are given. Since this is a new area, there are presently no references where one can find a more extensive treatment of all the material. However, both for algebraic geometry and for coding theory excellent textbooks are available. The combination ofthe two subjects can only be found in a number ofsurvey papers. A book by C. Moreno with a complete treatment of this area is in preparation. We hope that these notes will stimulate further research and collaboration of algebraic geometers and coding...

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