

Preface

The present book is based on the lecture notes of a graduate course Design Theory which was given at the Center for Combinatorics of Nankai University in spring of 2001. The lecture notes were scattered over the experts and students, modified year by year following some of their suggestions, and finally came to the present form.

The course consists of mainly the basic classical subjects of design theory, namely, balanced incomplete block designs, latin squares, t -designs and partially balanced incomplete block designs, and ends with association schemes.

The fundamental concepts of balanced incomplete block designs are given in Chapter 1 and various classical constructions appear in Chapters 2 and 3. Orthogonal latin squares are studied in Chapter 4. The construction of some families of balanced incomplete block designs, like Steiner triple systems and Kirkman triple systems, appears in Chapter 6, and as a preparation pairwise balanced designs and group divisible designs are introduced in Chapter 5. t -designs and partially balanced incomplete block designs, as generalizations of balanced incomplete block designs, are studied in Chapters 7, 8 and Chapter 9, respectively.

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