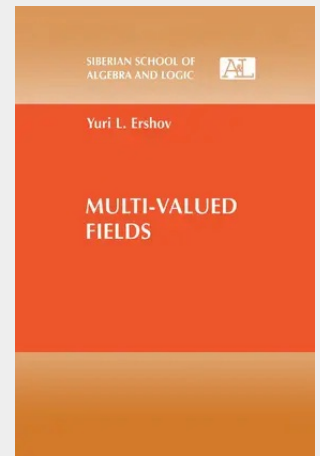


Multi-Valued Fields

For more than 30 years, the author has studied the model-theoretic aspects of the theory of valued fields and multi-valued fields. Many of the key results included in this book were obtained by the author whilst preparing the manuscript. Thus the unique overview of the theory, as developed in the book, has been previously unavailable.

The book deals with the theory of valued fields and multi-valued fields. The theory of Prüfer rings is discussed from the 'geometric' point of view. The author shows that by introducing the Zariski topology on families of valuation rings, it is possible to distinguish two important subfamilies of Prüfer rings that correspond to Boolean and near Boolean families of valuation rings. Also, algebraic and model-theoretic properties of multi-valued fields with near Boolean families of valuation rings satisfying the local-global principle are studied. It is important that this principle is elementary, i.e., it can be expressed in the language of predicate calculus. The most important results obtained in the book include a criterion for the elementarity of an embedding of a multi-valued field and a criterion for the elementary equivalence for multi-valued fields from the class defined by the additional natural elementary conditions (absolute unramification, maximality and almost continuity of local elementary properties). The book concludes with a brief chapter discussing the bibliographic references available on the material presented, and a short history of the major developments within the field.

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