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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Approach spaces -- Topological and metric approach spaces -- Approach invariants -- Index analysis -- Uniform gauge spaces -- Extensions of spaces and morphisms -- Approach theory meets Topology -- Approach theory meets Functional analysis -- Approach theory meets Probability -- Approach theory meets Hyperspaces -- Approach theory meets DCPO’s and Domains -- Categorical considerations.
Sommario/riassunto	A featured review of the AMS describes the author’s earlier work in the field of approach spaces as, ‘A landmark in the history of general topology’. In this book, the author has expanded this study further and taken it in a new and exciting direction. The number of conceptually and technically different systems which characterize approach spaces is increased and moreover their uniform counterpart, uniform gauge

spaces, is put into the picture. An extensive study of completions, both for approach spaces and for uniform gauge spaces, as well as compactifications for approach spaces is performed. A paradigm shift is created by the new concept of index analysis. Making use of the rich intrinsic quantitative information present in approach structures, a technique is developed whereby indices are defined that measure the extent to which properties hold, and theorems become inequalities involving indices; therefore vastly extending the realm of applicability of many classical results. The theory is then illustrated in such varied fields as topology, functional analysis, probability theory, hyperspace theory and domain theory. Finally a comprehensive analysis is made concerning the categorical aspects of the theory and its links with other topological categories. Index Analysis will be useful for mathematicians working in category theory, topology, probability and statistics, functional analysis, and theoretical computer science.