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		Functional Analysis
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	Sommario/riassunto	This book, which is the first of two volumes, presents, in a unique way, some of the most relevant research tools of modern analysis. This work empowers young researchers with all the necessary techniques to explore the various subfields of this broad subject, and introduces relevant frameworks where these tools can be immediately deployed. Volume I starts with the foundations of modern analysis. The first three chapters are devoted to topology, measure theory, and functional analysis. Chapter 4 offers a comprehensive analysis of the main function spaces, while Chapter 5 covers more concrete subjects, like multivariate analysis, which are closely related to applications and more

difficult to find in compact form. Chapter 6 deals with smooth and non-smooth calculus of functions; Chapter 7 introduces certain important classes of nonlinear operators; and Chapter 8 complements the previous three chapters with topics of variational analysis. Each chapter of this volume finishes with a list of problems – handy for understanding and self-study – and historical notes that give the reader a more vivid picture of how the theory developed. Volume II consists of various applications using the tools and techniques developed in this volume. By offering a clear and wide picture of the tools and applications of modern analysis, this work can be of great benefit not only to mature graduate students seeking topics for research, but also to experienced researchers with an interest in this vast and rich field of mathematics.