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Sommario/riassunto	This book originates from the INdAM Workshop "Analysis and Numerics of Design, Control, and Inverse Problems"and explores a broad spectrum of cutting-edge topics in Applied Mathematics, including Control of Partial Differential Equations (PDEs), Shape Optimization, Inverse Problems and Numerical Analysis. At the heart of many real-world applications lies the challenge of steering a system toward a desired configuration—often in the most efficient way possible. Whether it involves optimizing the shape of a structure, controlling the behavior of a physical system, or designing high-precision numerical methods, these challenges share a common mathematical framework. This book brings together powerful techniques from functional analysis, PDEs, and numerical methods, offering both theoretical insights and practical implementations. Moreover, it delves into the fascinating field of inverse problems, where mathematical tools help extract hidden information from data—a crucial approach in fields such as climate science and biomedical modeling. Ideal for researchers, and

advanced students, this book provides a comprehensive and accessible introduction to modern optimization and control methodologies with direct applications to science and engineering.
