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Nota di contenuto	Introduction -- Setting, Hypotheses and Main Results -- Mathematical Framework -- A Unified Framework for Common Physical Systems -- Studying the Dynamics -- The Kubo Formula and its Adiabatic Limit -- Applications.
Sommario/riassunto	This book presents a modern and systematic approach to Linear Response Theory (LRT) by combining analytic and algebraic ideas. LRT is a tool to study systems that are driven out of equilibrium by external perturbations. In particular the reader is provided with a new and robust tool to implement LRT for a wide array of systems. The proposed formalism in fact applies to periodic and random systems in the discrete and the continuum. After a short introduction describing the structure of the book, its aim and motivation, the basic elements of the theory are presented in chapter 2. The mathematical framework of the theory is outlined in chapters 3–5: the relevant von Neumann algebras, noncommutative L^p- and Sobolev spaces are introduced;

their construction is then made explicit for common physical systems; the notion of isopectral perturbations and the associated dynamics are studied. Chapter 6 is dedicated to the main results, proofs of the Kubo and Kubo-Streda formulas. The book closes with a chapter about possible future developments and applications of the theory to periodic light conductors. The book addresses a wide audience of mathematical physicists, focusing on the conceptual aspects rather than technical details and making algebraic methods accessible to analysts.