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Autore	Schulz-Baldes Hermann
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Nota di contenuto	Preliminaries on Crossed Products -- Besov Spaces for Isometric G-actions -- Quantum Differentiation and Index Theorems -- Duality for Toeplitz Extensions -- Applications to Solid State Systems.
Sommario/riassunto	This book contains a self-consistent treatment of Besov spaces for W*-dynamical systems, based on the Arveson spectrum and Fourier multipliers. Generalizing classical results by Peller, spaces of Besov operators are then characterized by trace class properties of the associated Hankel operators lying in the W*-crossed product algebra. These criteria allow to extend index theorems to such operator classes. This in turn is of great relevance for applications in solid-state physics, in particular, Anderson localized topological insulators as well as topological semimetals. The book also contains a self-contained chapter on duality theory for R-actions. It allows to prove a bulk-boundary correspondence for boundaries with irrational angles which implies the existence of flat bands of edge states in graphene-like

systems. This book is intended for advanced students in mathematical physics and researchers alike.