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Sommario/riassunto	An authoritative guide to designing and constructing wavelet functions that accurately model complex circuits for better performanceThis is the first book to provide details, analysis, development, implementation, and performances of wavelet modulated (WM) inverters, a novel technique that keeps power systems stable and minimizes energy waste while enhancing power quality and efficiency. Written by experts in the power electronics field, it provides step-by-step procedures to implement the WM technique for single- and three-phase inverters. Also presented are key sample performance results for the new WM power inverters for different load types, which

demonstrate the inverters' simplicity, efficacy, and robustness. Beginning with the fundamentals of inverter technology, the book then describes wavelet basis functions and sampling theory with particular reference to the switching model of inverters. From there, comprehensive chapters explain:. The connection between the non-uniform sampling theorem and wavelet functions to develop an ideal sampling-reconstruction process to operate an inverter. The development of scale-based linearly combined basis functions in order to successfully operate single-phase WM inverters. Performances of single-phase WM inverters for static, dynamic, and non-linear loads. The simulation and experimental performances of three-phase wavelet modulated voltage source inverters for different loads at various operating conditionsThe book establishes, for the first time, a direct utilization of different concepts of the sampling theorem and signal processing in accurate modeling of the operation of single- and three-phase inverters. Figures are provided to help develop the basis of utilizing concepts of the sampling, signal processing, and wavelet theories in developing a new tool and technology for inverters. Also included are easy-to-follow mathematical derivations, as well as procedures and flowcharts to facilitate the implementation of the WM inverters. These items make this unique reference of great interest to academic researchers, industry-based researchers, and practicing engineers. It is ideally suited for senior undergraduate and graduate-level students in electrical engineering, computer engineering, applied signal processing, and power electronics courses.