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Lingua di pubblicazione Formato Livello bibliografico Nota di bibliografia Nota di contenuto	Inglese Materiale a stampa Monografia Includes bibliographical references and index. Introduction Basics of signals and filtering Transfer function and frequency and time domain responses Frequency transformations in the analog domain and applications Introduction to the RM software for filter design Low-pass selective filters with critical monotonic amplitude characteristic (CMAC) in the passband Chebyshev and Modified Chebyshev filters Low-pass selective filters with increased selectivity Modified Elliptic low-pass filters Linear phase low-pass filters with improved selectivity Low-pass and band-pass group delay correctors Direct bandpass synthesis of linear and parabolic phase all-pass filters Direct bandpass synthesis of linear and parabolic phase selective filters Passive RLC cascade circuit synthesis Active RC cascade circuit synthesis Parallel active RC circuit synthesis Gm-C filter synthesis based on LC prototypes Parallel active SC circuit synthesis Parallel synthesis of IIR digital filters based on bilinear transformation of analog prototypes.

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including an introduction, definitions of the terms and algorithms for numerical calculation of the properties of the transfer function in frequency and time domains. All the chapters discuss the theoretical background and explain the underlying algorithms including the iterative numerical procedures necessary to obtain the solutions. It starts by considering polynomial filters, offering a broad range of solutions and introducing critical monotonic passband amplitude characteristics (CMAC). It also describes modifications to the classical Chebyshev and elliptic filters to overcome their limitations. In the context linear phase low-pass prototypes, it presents filters approximating constant group delay in the equi-ripple manner for the first time. Further, it discusses new procedures to improve the selectivity of all polynomial filters by introducing transmission zeros, such as filters with multiple transmission zeros on the omega axis, as well as phase correction of selective filters for both low-pass and band-pass filters. Other topics explored include linear phase all-pass (exhibiting low-pass group delay approximation) filters; all-pass filters (exhibiting band-pass group delay approximation) with linear and parabolic phase synthesized directly as band-pass; high-pass, and band-stop amplitude characteristic frequency transformations to produce band-pass; and direct synthesis of linear and parabolic phase selective band-pass filters synthesized directly as band-pass. Lastly, for system (physical) synthesis, the book describes the algorithms and procedures for the following: cascade passive LC; active cascade RC; active parallel RC (for the first time); active parallel SC; Gm-C based on LC prototypes; and parallel IIR based on bilinear transformation of analog prototypes. Every algorithm, be it in transfer function synthesis or in system synthesis, is accompanied by a proper nontrivial comprehensive example produced by the RM software.