Abstracts

Zolotarev Functions, A New Distributed Prototype Filter, and the Design of Mixed Lumped/Distributed Components

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The theory and applications of Chebyshev functions are familiar in microwaves, circuit theory, and other fields. Less well known are the extensions of Chebyshev's theory by his student E. Zolotarev, whose work was described in detail and extended by Achieser. Some of these results have been found useful in the solution of certain problems in both distributed and mixed lumped/distributed component design. As originally presented, Zolotarev functions involve higher-order elliptic functions and require a good deal of interpretation and simplification, which has now been carried out. Several new results have been obtained, and the application to microwave component design, indeed possibly to any field of engineering, is probably novel.

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