Mathematics and Its Applications

Oscillation Theory of Two-Term Differential Equations

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This volume is about oscillation theory. In particular, it considers the two-term linear differential equations $L_n y + p(x)y = 0$, where L_n is a disconjugate operator of order n and $p(x)$ has a fixed sign. Special attention is paid to the equation $y^{(n)} + p(x)y = 0$. These equations enjoy a very rich structure and are the natural generalization of the Sturm–Liouville operator. Our aim is to introduce an order among the results which are distributed over hundreds of research papers, and arrange them in a unified and self-contained way. Many new proofs are given and the original proof is never copied verbatim. Numerous new results are included. Among the topics which are discussed are oscillation and nonoscillation, disconjugacy, various types of disfocality, extremal configurations of zeros, comparison theorems, classification of solutions according to their behaviour near infinity and their dominance properties.

Audience

This work will be of interest to researchers and graduate students interested in the qualitative theory of differential equations.

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