Ill-posed problems for integrodifferential equations in mechanics and electromagnetic theory

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Abstrak

Examines ill-posed, initial-history boundary-value problems associated with systems of partial-integrodifferential equations arising in linear and nonlinear theories of mechanical viscoelasticity, rigid nonconducting material dielectrics, and heat conductors with memory.
Variants of two differential inequalities, logarithmic convexity, and concavity are employed. Ideas based on energy arguments, Riemann invariants, and topological dynamics applied to evolution equations are also introduced.
These concepts are discussed in an introductory chapter and applied there to initial boundary value problems of linear and nonlinear diffusion and elastodynamics. Subsequent chapters begin with an explanation of the underlying physical theories.