

Preface

This book presents the formulation of the fundamentals of mechanothermodynamics and analyzes its four principles. The first principle establishes the generalized law of damageability, the second establishes its main cause; the third, its scale; and the fourth characterizes the interrelation of motion, damage, and information. It is shown that in specific (living) systems the information accumulation in time leads to the emergence of elements of intelligence. A generalized model of energy and entropy states of a mechanothermodynamic medium, which in general is a continuum (liquid, gas) with distributed deformable solids and, hence, with damageable solids, is developed. The generalized theory of A-evolution of systems (by damageability) is outlined and further research directions are analyzed.

Mechanothermodynamics

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