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INTERFACE BALANCE LAWS; 3.1. General interface balance law; 3.1.1. Balance law for the three-dimensional continuum; 3.1.2. First integration method of the local balance laws for the three-dimensional continuum; 3.1.3. Second integration method of the balance laws for the three-dimensional continuum; 3.1.4. Some comments; 3.2. Interface balance laws for species, mass, momentum and energy; 3.2.1. Interface balance laws for species; 3.2.2. Interface balance law for mass; 3.2.3. Momentum interface balance law
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4.4. Surface heat transfer4.5. Problems related to evaporation / condensation; 4.5.1. Plane interface case; 4.5.2. Curvature effect; 4.6. Surface chemical reactions; 4.7 Interfaces without mass; 5. CLASSICAL THREE-DIMENSIONAL CONSTITUTIVE RELATIONS DEDUCED FROM LINEAR IRREVERSIBLE THERMODYNAMICS AND THEIR CONSEQUENCES FOR INTERFACES; 5.1. Constitutive relations of three-dimensional classical fluid mixtures; 5.2. The case of premixed flames with high activation energy; 5.2.1. The classical theory of planar adiabatic premixed flames
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Sommario/riassunto

This book constitutes a comprehensive survey of the balance equations for mass, momentum and energy for the interfaces in pure fluids and mixtures. Constitutive laws are presented for many situations in engineering science, and examples are provided, including surface viscosity effects, variable surface tension and vapor recoil. In addition, some extensions of existing theory are given: stretch effect in premixed flames, relaxation zones downstream two-phase shock waves, and effective surface tension for steep gradient zones. Contents: Thermodynamics and Kinematics of Interfaces; Interface Bal