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Nota di contenuto	Contents ; Preface ; Chapter 1 Long and close range interaction within elastic structures ; 1.1 Dilute composite structures. Scalar problems ; 1.1.1 An elementary example. Motivation ; 1.1.2 Asymptotic algorithm involving a boundary layer ; 1.1.2.1 Formulation of the problem 1.1.2.2 The leading-order approximation 1.1.2.3 Asymptotic formula for the energy ; 1.1.3 The dipole matrix ; 1.1.3.1 Definition of the dipole matrix ; 1.1.3.2 Symmetry of the dipole matrix ; 1.1.3.3 The energy asymptotics for a body with a small void 1.1.4 Dipole matrix for a 2D void in an infinite plane 1.1.5 Dipole matrices for inclusions ; 1.1.6 A note on homogenization of dilute periodic structures ; 1.2 Dipole fields in vector problems of linear elasticity ; 1.2.1 Definitions and governing equations

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; 1.2.4 Examples	; 1.2.5 The energy equivalent voids
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inclusions	
1.4.4 Square array of circular inclusions	

Sommario/riassunto

This monograph provides a systematic study of asymptotic models of continuum mechanics for composite structures, which are either dilute (for example, two-phase composite structures with small inclusions) or densely packed (in this case inclusions may be close to touching). It is based on the results of recent research and includes a comprehensive analysis of dipole and multipole fields associated with defects in solids. The text covers static problems of elasticity in dilute composites as well as spectral problems. Applications of the mathematical models included in the book are in damage me