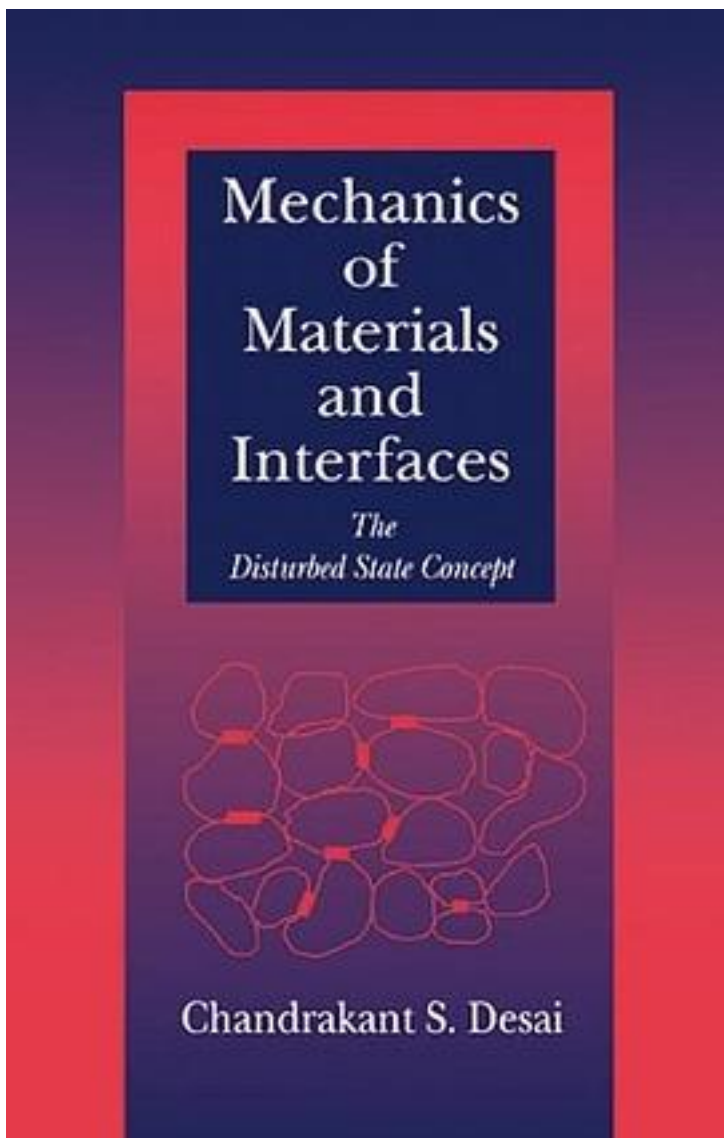


# The Art of Modeling in Science and Engineering



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著者:Basmadjian, Diran

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The disturbed state concept (DSC) is a unified, constitutive modelling approach for engineering materials that allows for elastic, plastic, and creep strains, microcracking and fracturing, stiffening or healing, all within a single, hierarchical framework. Its capabilities go well beyond other available material models yet lead to significant simplifications for practical applications. Until now, however, there has been no resource that fully describes the theory, techniques, and potential of this powerful method. "Mechanics of Materials and Interfaces: Disturbed State Concept" presents a detailed theoretical treatment of the DSC and shows that it can provide a unified and simplified approach for mathematical characterization of the mechanical response of materials and interfaces. Within this comprehensive treatment, the author compares the DSC with other available models. This book identifies the physical meaning of the relevant parameters and presents procedures to determine them from laboratory test data. It validates the DSC models with respect to laboratory tests used to find the parameters and independent tests not used in the calibration. It implements the models in computer procedures. It validates those procedures by comparing predictions with observations from simulated and field boundary value problems. It solves problems from a variety of disciplines, including civil, mechanical, and electrical engineering. If you are involved in the mechanics of materials, you owe it to yourself to explore the disturbed state concept. "Mechanics of Materials and Interfaces" provides the first - and to date, the only - comprehensive means of doing so.

作者介绍:

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