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Sommario/riassunto

This book explores the complexities of contact problems in structural mechanics, offering a detailed examination of the mathematical and computational methods used to solve these issues. It covers numerical approaches such as the penalty method, multiplier method, and augmented Lagrangian method for addressing contact problems with both equality and inequality constraints. The book delves into the kinematics of contact, stress analysis, constitutive laws for different materials, and the formulation of contact laws. It provides a comprehensive framework for understanding contact mechanics through both strong and weak formulations, matrix equations, and solutions to quasi-static and dynamic contact problems. The content is tailored for engineers, researchers, and students in structural mechanics, with an emphasis on numerical methods and practical applications.