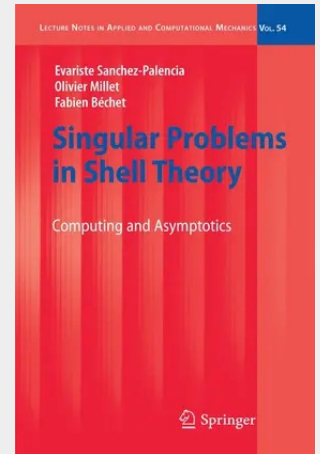


Singular Problems in Shell Theory

Computing and Asymptotics

Thin shells are three-dimensional structures with a dimension (the thickness) small with respect to the two others. Such thin structures are widely used in automobile and aviation industries, or in civil engineering, because they provide an important stiffness, due to their curvature, with a small weight. Fig. 0.1. Airbus A380 Fig. 0.2. Hemispherical roof (Marseille, France) One of the challenges is often to reduce the weight (and consequently the thickness) of the shells, preserving their stiffness. So that it is essential to have accurate models for thin and even very thin shells, and to be able to compute the displacements resulting from a given loading. In particular, singularities leading to fractures in some cases must be absolutely predicted a priori and of course avoided (see Fig. 0.3 for example). Since the pioneering models of Novozhilov-Donnell [81] and Koiter [65][66], numerous works have been devoted to establish linear and non linear elastic shell model using direct or surface approaches [18][25][100]. More recently, the asymptotic methods [87] have been used, to try to justify rigorously, from the three-dimensional equations, the shell models obtained by direct approaches - lying on a priori assumption, and to construct new models [54][55]. This way, very thin shells are present in certain domains of industry, as plastic films for packaging or for electronics, stretched sails, or even very thin metal sheets obtained by drawing. E. Sanchez-Palencia et al.: Singular Problems in Shell Theory, LNACM 54, pp. 1–11.

State of the art of singular problems in shell theory Written by experts in the field Introduces new concepts



160,49 €

149,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9783642138140

Medium: Buch

ISBN: 978-3-642-13814-0

Verlag: Springer

Erscheinungstermin: 30.09.2010

Sprache(n): Englisch

Auflage: 1. Auflage. 2010

Serie: Lecture Notes in Applied and Computational Mechanics

Produktform: Gebunden

Gewicht: 1260 g

Seiten: 266

Format (B x H): 155 x 235 mm

