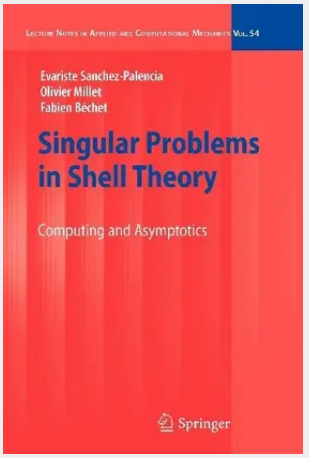
Sanchez-Palencia / Millet / Bechet

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 automobileandaviation industries,or in civil engineering, because they provide animportantsti?ness, due to theircurvature,with a small weight. Fig. 0.1. Airbus A380 Fig. 0.2. Hemispherical roof (Marseille, France) One ofthechallenges is often to reduce the weight (andconsequently the thickness)oftheshells, preservingtheirsti?ness.So that it is essential to have 1 accuratemodelsforthinandevenverythinshells ,andtobeabletocomputethe displacements resultingfromagivenloading.In particular, singularities leading to fractures in some cases must be absolutely predicted a priori and ofcourse avoided (see Fig.0.3 forexample). Since the pioneeringmodels of Novozhilov-Donnell [81] and Koiter [65][66], numerous works havebeen devoted to establish linear and non linear elastic shell model usingdirect orsurfacic approaches [18][25][100]. More recently, the asymptoticmethods [87] havebeen used, to try tojustify rigorously, fromthe three-dimensional equations, the shell models obtained by direct approaches - lying onapriori assumption, andto construct new models [54][55]. This way, 1 Very thin shells are present in certain domains of industry, as plastic ?lms for pa- aging or for electronics, streched 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.

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 automobileandaviation industries,or in civil engineering, because they provide animportantsti?ness, due to theircurvature,with a small weight. Fig. 0.1. Airbus A380 Fig. 0.2. Hemispherical roof (Marseille, France) One ofthechallenges is often to reduce the weight (andconsequently the thickness)oftheshells, preservingtheirsti?ness.So that it is essential to have 1 accuratemodelsforthinandevenverythinshells ,andtobeabletocomputethe displacements resultingfromagivenloading.In particular, singularities leading to fractures in some cases must be absolutely predicted a priori and ofcourse avoided (see Fig.0.3 forexample). Since the pioneeringmodels of Novozhilov-Donnell [81] and Koiter [65][66], numerous works havebeen devoted to establish linear and non linear elastic shell model usingdirect orsurfacic approaches [18][25][100]. More recently, the asymptoticmethods [87] havebeen used, to try tojustify rigorously, fromthe three-dimensional equations, the shell models obtained by direct approaches - lying onapriori assumption, andto construct new models [54][55]. This way, 1 Very thin shells are present in certain domains of industry, as plastic ?lms for pa- aging or for electronics, streched 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.

160,49 €
149,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9783642264337
Medium: Buch
ISBN: 978-3-642-26433-7
Verlag: Springer
Erscheinungstermin: 13.10.2012
Sprache(n): Englisch
Auflage: 2010
Serie: Lecture Notes in Applied and Computational Mechanics
Produktform: Kartoniert
Gewicht: 429 g
Seiten: 266
Format (B x H): 155 x 235 mm

Kundenservice Verlag Dr. Otto Schmidt KG
Neumannstraße 10, 40235 Düsseldorf | kundenservice@otto-schmidt.de | 0221-93738-997 (Inland)