

1. Record Nr.	UNINA9910338250503321
Autore	Krysko Vadim A
Titolo	Mathematical Models of Higher Orders : Shells in Temperature Fields // by Vadim A. Krysko, Jan Awrejcewicz, Maxim V. Zhigalov, Valeriy F. Kirichenko, Anton V. Krysko
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2019
ISBN	3-030-04714-8
Edizione	[1st ed. 2019.]
Descrizione fisica	1 online resource (XII, 470 p. 139 illus., 133 illus. in color.)
Collana	Advances in Mechanics and Mathematics, , 1876-9896 ; ; 42
Disciplina	003.3
Soggetti	Mathematical models Nonlinear Optics Differential equations Mathematical Modeling and Industrial Mathematics Differential Equations
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	1. Introduction -- 2. Mathematical Modeling of Nonlinear Dynamics of Continuous Mechanical Structures with Account of Internal and External Temperature Fields -- 3. Nonclassical Models and Stability of Multi-Layer Orthotropic Thermoplastic Shells within Timoshenko Modified Hypotheses -- 4. General Problems of Diffraction in Theory of Design - Nonlinear Shells and Plates Locally Interacting with Temperature Fields -- 5. Stability of Flexible Shallow Shells Subjected to Transversal Load and Heat Flow -- 6. Mathematical Models of Multi-Layer Flexible Orthotropic Shells Under Temperature Field -- 7. Chaotic Dynamics of Closed Cylindrical Shells Under Local Transversal Load and Temperature Field (First Order Kirschhoff-Love Approximation Model) -- Index.
Sommario/riassunto	This book offers a valuable methodological approach to the state-of-the-art of the classical plate/shell mathematical models, exemplifying the vast range of mathematical models of nonlinear dynamics and statics of continuous mechanical structural members. The main objective highlights the need for further study of the classical problem

of shell dynamics consisting of mathematical modeling, derivation of nonlinear PDEs, and of finding their solutions based on the development of new and effective numerical techniques. The book is designed for a broad readership of graduate students in mechanical and civil engineering, applied mathematics, and physics, as well as to researchers and professionals interested in a rigorous and comprehensive study of modeling non-linear phenomena governed by PDEs.

---