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Title

Finite element model for buckling analysis of thin-walled beam-type structures

Abstract

In the field of structural engineering thin-walled beam-type structures of different configurations and cross-sectional shapes constitute a very important class of load-carrying components, where they are applied both in their stand-alone forms and as stiffeners for some plate or shell assemblages. Finite element beam model based on the framework of uploaded Lagrangian incremental formulation and nonlinear displacement field, which accounts for restrained warping and the second-order displacement terms due to the large rotations will be presented. A several numerical examples will be shown to simulate the global buckling behaviour of different structure configurations and various cross section types. A hybrid finite element which accounts for frame member flexible connections will be presented.

Date

13/12/2016, Aula Trasposrti, h. 10 a.m.

Biography

Domagoj Lanc was born in Rijeka on December 31st, 1973. He graduated at Faculty of Engineering, University of Rijeka at 1997. During his studies he was rewarded for his studies success three times. He received from University of Rijeka, a M. Sc degree in 2000, and a Ph.D. degree in "Structural Engineering" in 2006. He is employed as Professor and Head of the Section of Structural Analysis at the Department of Engineering Mechanics of Faculty of Engineering, University of Rijeka. Essentials of scientific research are experimental studies and numerical analysis of structures. Experimental studies relate mainly to testing the mechanical and elastic properties of materials at reduced and elevated temperatures and to study the behaviour of materials in creep regime while the numerical analysis of structures mainly relate to the development of finite element models for simulation of structural behaviour of beam-type structures in regimes of large spatial displacement and spatial rotation at different regimes of exploitation including the various forms of thin-walled cross-sectional types. As an author he published more than 50 papers in international scientific journals, 35 papers in proceedings of scientific conferences and 12 professional papers in the field of experimental and numerical structural analysis. As a member of research teams he works on four research projects funded by the Croatian Ministry of Science and Technology and on two bilateral project between University of Rijeka/Technical University Graz, Austria, and between University of Rijeka/Henan Polytechnic University, China. With the aim of advanced education he visited a number of prestigious foreign scientific institutions trough various scholarships and international funding sources. He is member of the Croatian Society of Mechanics since year 2002. and EUROMECH's since 2009. He is a member of the Croatian parent committee for the interdisciplinary field since 2013. University of Rijeka Foundation awarded him by the "Annual prize for academic year 2011/2012." He is married and father of three children.