Università degli Studi di Pavia

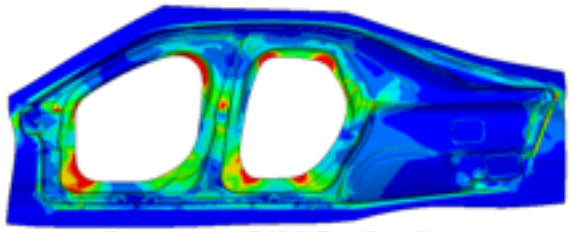
Dipartimento di Meccanica Strutturale

in collaboration with
Centro di Simulazione Numerica Avanzata – CeSNA
Istituto Universitario di Studi Superiori

SEMINAR

Possibilities of finite element analysis with LS-DYNA in industrial applications

This presentation will give a rough introduction of the commercial finite element program LS-DYNA. Various topics in the industrial applications (i.e. crash simulation, sheet metal forming, dummy modeling, ...) will be addressed to demonstrate the possibilities of finite element analysis in different areas.



Dr. Stefan Hartmann
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Thursday April 14, Ore: 14.00 – 15.00
Aula Conferenze IMATI-CNR
Via Ferrata,1 – Pavia

The support of the European Community through the 2010 ERC Starting Grant project "ISOBIO: Isogeometric Methods for Biomechanics" is gratefully acknowledged

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Recent developments in LS-DYNA for Isogeometric Analysis

The goal of integrating computer aided design (CAD) and finite element analysis (FEA) has led to a new computational method called Isogeometric Analysis. Much of the recent research on Isogeometric Analysis uses Non-Uniform Rational B-Splines (NURBS) as the basis functions, as this geometrical representation is the most widely used in engineering design systems. It has been shown that NURBS-based finite elements are very well suited for computational analysis leading to qualitatively more accurate results in comparison with standard finite elements based on Lagrange polynomials. Due to these motivating results, NURBS-based finite elements are currently implemented into LS-DYNA. This presentation will show the actual capabilities of LS-DYNA for Isogeometric Analysis, including the actual pre- and post-processing possibilities with LS-PrePost. Different shell formulations will be discussed and the idea of the so-called "generalized elements" will be explained.

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