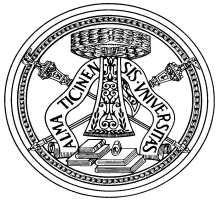

Università degli Studi di Pavia
Computational Mechanics & Advanced Materials Group - DICAr

Design Optimization of a Hydraulic Arresting Gear using Immersogeometric Fluid–Structure Interaction

SEMINAR

Multidisciplinary design optimization of a full-scale hydraulic arresting gear used to retard the forward motion of an aircraft landing on an aircraft-carrier deck is performed. The simulations make use of the recently purposed immersogeometric fluid–structure interaction (FSI) techniques. A recently developed interactive geometry modeling and parametric design platform for isogeometric analysis (IGA) is employed to create the arresting gear model, and illustrates a natural application of IGA to this problem class. The fluid mechanics and FSI simulation results are reported in terms of the arresting-gear rotor loads and blade structural deformation and vibration. Excellent agreement is achieved with the experimental results for the arresting gear design simulated in this work. Using our recently proposed isogeometric design optimization framework, a new design of the arresting gear rotor blade is proposed to reduce the maximum stress and stress variance on the structure.

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March 1st, 14:30pm
DICAr MS1 Meeting Room
Via Ferrata, 3 – Pavia

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