

YIC 2012

Aveiro - Portugal
24-27 April 2012 Book of Abstracts

ECCOMAS
YOUNG
INVESTIGATORS
CONFERENCE
2012



YIC2012

Young Investigators Conference

Proceedings of the First ECCOMAS Young Investigators Conference
on Computational Methods in Applied Sciences

in conjunction with the

ECCOMAS 2nd PhD Olympiad

held in Aveiro, Portugal
24-27 April 2012

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Preface

YIC2012 is the first Young Investigators Conference, an initiative promoted by the European Community on Computational Methods in Applied Sciences (ECCOMAS). Computational methods in science and technology have been a major topic at a large number of conferences, forums and symposiums. The main goal of the ECCOMAS Young Investigators Conferences, namely the YIC2012, is to periodically bring together young researchers and students working in a wide number of areas of computational science and engineering. The focus of YIC2012 is particularly posed on the applications of mathematical, computational methods and modelling to different areas of simulation in engineering.

The YIC2012 is held at the University of Aveiro, in Portugal, under the auspices of ECCOMAS, from 24 to 27 April, 2012.

This book of abstracts and proceedings, of the first Young Investigators Conference, are the result of remarkable contributions of young scientists and PhD students working in five main topics, namely (i) Computational Solids and Structural Mechanics, (ii) Computational Fluid Dynamics, (iii) Computational Applied Mathematics, (iv) Scientific Computing and (v) Industrial Liaison Activity.

Although YIC2012 is aimed at young scientists, senior scientists have contributed to the success of the conference by their presentations and promoted discussions as well as research works, incorporated in the book of abstracts and proceedings. The presence of senior scientists and thesis supervisors is very fruitful for all participants, and it is hoped that young researchers and PhD students can take profit from this experience.

The organizers hope that this very first Young Investigators Conference 2012 can represent a remarkable opportunity for a fruitful exchange of ideas between the participants, and a landmark in the ECCOMAS history of Conferences.

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Aveiro, Portugal, April 2012.

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Fire resistance of steel members protected with intumescent coatings

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Abstract. *Abstract. The required intumescent coating thicknesses needed for fire resistance are proposed by the paints manufactures based on the results of a limited number of standard fire resistance tests, considering different steel section factors and DFTs. This work presents a set of 50 experimental fire resistance tests made in a pilot gas furnace and considering: (i) different member cross-sections (IPE, SHS, CHS, LNP), (ii) analysis at ambient temperature and fire conditions, (iii) application of a mechanical loading in a tree-point bending setup, (iv) different utilization degree level (30*

Keywords: Fire resistance; Fire tests; Fire Protection; Intumescent Paint.
